

QQ Guide



For Small Distribution Systems

ACKNOWLEDGEMENTS

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In April of 2003, a team of individuals representing the liquid pipelines, natural gas industry, and regulatory representatives from around the country, were tasked with development of guidance for small system operators of liquid and natural gas systems, to comply with the Operator Qualification (OQ) Rule. The Small System Operator Task Force (SSOQ) in this document has developed:

- ◆ A list of definitions which may be helpful in understanding the OQ Rule,
- ◆ Model Plan for compliance to OQ Rule,
- ◆ A “How to Guide” to comply with OQ,
- ◆ Guidance material which explains OQ audit protocols, which will be used to review an operators OQ program.

The following SSOQ members are recognized as experts in their fields and have given generously of their unique knowledge. They were directly involved in the development of this guide material.

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This guidance material was implemented under the sponsorship of the U.S. Department of Transportation. The material relies on sources representing the best opinion on the subject at the time of publication. However, it should not be assumed that all acceptable safety measures and procedures are mentioned in this manual. The reader is referred to the Code of Federal Regulations (49 CFR Parts 190-199, Part 40 and also NFPA 58 & 59) for the complete pipeline safety requirements.

CHARACTERISTICS OF A SMALL SYSTEM OPERATOR

All stakeholders in the pipeline industry fully support the operator qualification (OQ) protocols developed by the U.S. Department of Transportation's Office of Pipeline Safety (OPS) in response to the Pipeline Safety Improvement Act of 2002. It is also recognized there is a need for effective guidance for small system operators (i.e. those with less complex gas distribution systems) about how to comply with the protocols. In response to this need, federal and state pipeline safety regulators as well as representatives of small systems committed to develop that guidance and a set of criteria to assist operators who operate less complex pipeline systems.

The one constant and underlying goal of the group developing the characteristics of a small system operator, and their protocols, was to ensure that the level of safety provided by OPS' OQ process was maintained and the effectiveness of the rule was not compromised.

The fundamental rationale for having a different set of criteria for small system operators is that many of these operators have a less complex system and management structure. Therefore, such an operator does not need many of the processes and formal management structure described in the current OQ protocols. Both pipeline safety regulators and the regulated industry need to share a common understanding of the "general characteristics" of a small system operator to ensure appropriate protocols application during a compliance audit.

A number of system characteristics were discussed by the government-industry team in determining—what is a "small system operator?" To provide general guidance, two characteristics are discussed below.

1. **Resources.** Smaller systems have fewer resources available than larger systems, however all operators must comply with the same pipeline safety regulations. Smaller systems have:
 - (i) Less complex systems than larger operators;
 - (ii) Fewer individuals;
 - (iii) Less complex management structures;
 - (iv) Few layers of management, if any, between the OQ Plan Administrator and its personnel performing covered tasks.
2. **Number of employees performing covered tasks.** While this is part of Characteristic 1 above, the government-industry task force agreed that a system with five or fewer individuals performing covered tasks is likely to be a "small operator." The government-industry task force also agreed that, depending on other relevant factors, a system with more than 10 individuals performing covered tasks could be determined to be a "small operator."

These factors are not exclusive in determining a "small operator." It is important to remember guidance material which applies to large operators also applies to small operators. **In providing this supplemental guidance for small operators, the team recognized that the state program managers have the authority and must also have the flexibility in making that final determination in a fair consistent manner.**

Again, the elements of OQ compliance should be the same regardless of size; none of OPS' criteria has been eliminated. The small system operator's protocol elements have been structured to reflect that smaller operators require less formal and less complex OQ compliance programs.

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CHAPTER I

GUIDELINES FOR DEVELOPING AN OPERATOR QUALIFICATION PROGRAM

INTRODUCTION

These guidelines were prepared by a team of industry and government pipeline safety and training experts to assist small operators and master meter system operators to develop programs to ensure that individuals who operate and maintain these systems are qualified for the work they perform. Operators are required to prepare and follow an OQ program by federal regulations at 49 CFR 192 Subpart N and 49 CFR 195 Subpart G, as well as regulations adopted by some states.

OQ programs must identify each individual, whether it be an employee of the operator or an employee of a contractor hired by the operator, who performs covered operations or maintenance activities on the piping system. The OQ program must also identify the “covered tasks” that each individual performs and ensure that each individual is tested to ensure they have the necessary knowledge, skills and abilities to perform each task, as well as to recognize and react to emergencies that may arise while performing these tasks. The process the operator follows to accomplish these objectives must be in writing. Records of the tests and other actions required in the plan must be made available for inspection by state and federal pipeline safety inspectors.

The following steps should be considered when preparing an operator qualification program.

PREPARE A WRITTEN OPERATOR QUALIFICATION PLAN

The regulations require that you prepare and follow a written OQ plan that at minimum includes the following eight provisions:

1. Identify covered tasks (operation and maintenance activities affecting the integrity of the pipeline and required by the safety code);
2. Evaluate individuals performing covered tasks to prove that they are qualified;
3. Allow individuals who are not qualified to perform a covered task if directed and observed by an individual who is qualified;
4. Evaluate an individual if there is reason to believe that the individual's performance of a covered task contributed to an incident;
5. Evaluate an individual if there is reason to believe that the individual is no longer qualified to perform a covered task;
6. Communicate changes that affect covered tasks to individuals performing those covered tasks;
7. Establish re-evaluation intervals; and

8. Describe how training will be used in the OQ program where appropriate (new hires, refresher training for existing employees who transfer to new jobs or fail re-evaluations, etc.).

In addition to these minimum requirements, the written OQ plan should:

1. Name the person who will be responsible for ensuring that the requirements of the plan are carried out;
2. Identify records necessary to carry out the program and where those records will be kept.

IDENTIFY COVERED TASKS

A covered task is defined as any task that:

1. Is performed on a pipeline facility;
2. Is an operations or maintenance task;
3. Is performed as a requirement of this part (Part 192 or Part 195); and
4. Affects the operation or integrity of the pipeline.

The first step in identifying covered tasks is to identify tasks performed on pipeline facilities. "Pipeline facilities" means all underground piping and outdoor aboveground piping; it generally does not include piping inside customer buildings, although if gas is sold to the customer through a gas meter located inside the building, "pipeline facility" extends inside up to the outlet of the meter.

A good source to identify tasks performed on a pipeline facility is the Manual for Operations, Maintenance and Emergency Response. This will describe operations and maintenance tasks performed on a system.

The following is a list of common operations and maintenance tasks. Not all of these tasks may apply to every system, and there may be additional tasks performed on other systems that meet the definition of a covered task that are not listed here:

- Investigating leak/odor complaints
- Locating and marking lines
- Controlling and monitoring pipeline pressures and product flows
- Operating an odorizer
- Monitoring natural gas odorization levels ("sniff tests")
- Repairing leaks
- Inspecting and testing pressure regulator station and overpressure protection
- Tapping pipelines under pressure
- Conducting leakage surveys
- Joining pipe for maintenance
- Inspecting critical valves

- Welding on a pipeline for maintenance
- Excavating and backfilling
- Repairing coating on existing steel pipelines
- Measuring pipe-to-soil potential
- Coating aboveground piping
- Inspecting for atmospheric corrosion
- Inspecting the condition of exposed pipe or pipe coating
- Installing/replacing a rectifier
- Installing/replacing an anode or test station
- Inspecting a rectifier
- Visually inspecting for internal corrosion
- Purging
- Patrolling
- Isolating sections of pipe or stopping off or otherwise controlling the flow of gas or product to a work site

Certain critical tasks fall outside the scope of the OQ Rule. Relighting appliances and other work performed on gas piping or equipment inside the residences are not covered tasks since they are not performed on a pipeline facility as defined above. Conducting meter dial tests for leaks of internal piping also fall in this category. While individuals performing these tasks are not subject to the OQ program, operators should ensure that competent people do this work since mistakes can lead to accidents. OQ does not exempt anyone from the general good business practices to use competent individuals for all tasks that are important for the safe operation of your system.

Covered task lists may also be purchased from many industry trade associations and other vendors. If one of these lists is utilized, it must be carefully reviewed to ensure that it includes all the tasks performed on the system. Any tasks that are not performed on your system should also be deleted.

EVALUATE INDIVIDUALS WHO PERFORM COVERED TASKS

Evaluating means testing a person through written tests, oral exams, observation while performing the task on the job or in a classroom or simulated setting, or any other documented method that can prove the individual possesses the necessary knowledge, skills and abilities to perform the covered task and recognize and react to “Abnormal Operating Conditions (AOCs).” A checklist is required if observation on the job or a simulation is used for evaluation. To be acceptable, each evaluation must include a document that states what is pass or fail for each step in the evaluation and indicates what knowledge, skills, abilities or AOC’s were tested or observed.

An OQ plan must list the specific evaluations (tests, observations, etc.) that will be accepted as evidence of qualification in each covered task. The list may include more than one acceptable means of qualifying individuals for a task. For example: An operator may adopt their contractors’ evaluations or evaluations by third parties (e.g. associations, vendors, state and local governments) however the operator is responsible to show that the evaluations are appropriate for the way the task is performed on the system.

The operator should be able to demonstrate that the evaluations accepted for each covered task measure the knowledge, skills and abilities required for the task. The evaluations should address critical skills and abilities in addition to critical knowledge needed to perform each task. For example, certain tasks require physical abilities and physical skills critical to accomplishing the covered task, in addition to knowledge of how to perform the task. In that instance, it must be ensured the evaluation includes a test to address the physical ability of the individual to perform the task. The actual evaluation may involve a knowledge-based test, plus a practical application in the field or classroom simulation to demonstrate physical ability and proficiency.

Further, the testing for covered tasks included in the qualification program must also include questions or hands-on demonstrations on abnormal operating conditions (AOCs) associated with the task to both recognize and react to the AOCs. Abnormal operating condition means a condition that may indicate a malfunction of a component or deviation from normal operations that may:

- (a) Indicate a condition exceeding design limits; or
- (b) Result in a hazard(s) to persons, property, or the environment.

For example, a leaking gas pipe is a malfunction of the pipe (it's not supposed to leak) and can result in a hazard to persons and property.

Some typical AOCs include:

- Fire
- Odor report
- Leaking gas or product
- Component failure
- Operation of a safety device
- Unintended valve closure
- Overpressure
- Under-odorized gas

Some AOCs are specific to certain covered tasks (e.g., component failure could be failure of a valve, regulator, relief valve, rectifier, etc., depending on the task). Other AOCs are general and apply to many, if not all, tasks (e.g., anyone performing operations or maintenance tasks should be able to recognize and react to gas odors, leaking product or spills).

Operators must determine credible AOCs and identify how personnel are expected to react to these. Evaluations used by the operator should address how to recognize and react to abnormal operating conditions. AOC evaluations may be broken out into a separate section of the evaluation or may be incorporated within those portions of the evaluations that address routine knowledge, skills and abilities. Operators should be able to demonstrate that all abnormal operating conditions that can reasonably be anticipated to be encountered and related to the task being performed are addressed in the evaluations for that task, particularly if off-the-shelf evaluations are being used.

Some conditions such as recognizing low pipe-to-soil potentials or corroded pipe could be considered abnormal operating conditions or could be considered part of the routine knowledge,

skills and abilities for covered tasks such as measuring pipe-to-soil potentials or inspecting pipe condition. For OQ compliance purposes, as long as the evaluations for the covered task address how to recognize and react to these conditions, it does not matter if these are classified as AOCs or normal conditions.

If an operator elects to accept evaluations developed by others, e.g., your contractors, state plumbers licenses, associations or other vendors, that operator must ensure that these evaluations address the knowledge, skills and abilities necessary to perform the task and recognize and respond to AOCs according to the OQ program procedures.

While not specifically required by the regulation, the written OQ plan should address the qualifications of the individuals who will evaluate your employees and contractors. If the evaluations chosen require the evaluator to make a judgment whether the task was performed correctly, then the evaluator should possess adequate knowledge about proper performance of the task so that he/she can make a proper judgment when evaluating the task.

ALLOW UNQUALIFIED INDIVIDUALS TO PERFORM A COVERED TASK IF DIRECTED AND OBSERVED BY AN INDIVIDUAL WHO IS QUALIFIED

Operators may allow individuals who have not met the evaluation criteria listed in the OQ plan to perform covered tasks under controlled conditions. A written OQ plan must spell out the conditions under which individuals who have not met the qualification criteria may perform tasks while under the observation and direction of a qualified individual. This is intended to allow on-the-job training and temporary labor work teams. The operator must ensure that non-qualified personnel are watched by a person qualified in the covered task being performed and the observer should be prepared to take immediate corrective action should he/she observe work being done that is not in accordance with the operator's procedures, or is being done in an unsafe manner. Supervising from a remote location is NOT acceptable – the qualified individual must be on-site, watching the task and ready to intervene immediately should it be necessary. The written OQ plan should provide guidance on how many non-qualified workers can be directed and observed at one time by a qualified individual and a list of any tasks non-qualified persons will not be allowed to perform (e.g., hot taps).

Operators may specify in the OQ plan that only qualified individuals may perform covered tasks, in which case on-the-job training for covered tasks may not be used even with a qualified individual directing and observing the non-qualified individuals.

POST ACCIDENT/INCIDENT EVALUATION

The OQ plan must specify that the operator will re-evaluate anyone whose performance of a covered task may have contributed to an accident (for hazardous liquid pipelines) or incident (for gas pipelines), either caused it, failed to respond appropriately or made it worse by responding inappropriately. For example, if an accident/incident occurs because a pipeline location was inaccurately marked, the individual who marked the line may have contributed to the accident/incident. Similarly, if an individual opens a valve that should remain closed and that causes an accident/incident to be worse, that contributes to the severity of the accident/incident. The OQ plan must specify the process used re-evaluate these individuals. Re-evaluation need not be by the same methods you used to initially evaluate the individual, but if the operator intends to use a different method, this method must:

1. Address the knowledge, skills, abilities and AOCs for the task, and
2. Be listed in the written OQ Plan as an accepted evaluation for the covered task.

FOR CAUSE EVALUATION

The OQ plan must include provisions on how to re-evaluate persons for whom there are reasons to believe that they are no longer qualified. The plan should include some guidance for supervisors to recognize and react to behavior that would trigger these provisions. Reasons could include observation of the person not following procedures, injury or illness that reduces motor skills.

COMMUNICATION OF CHANGES

The OQ plan must specify how changes to policies, procedures, equipment or regulations are to be communicated to anyone who performs covered tasks affected by the change. Re-evaluation may be required if the changes affect the knowledge, skills and abilities required for the task. For example, when purchasing a new leak detection instrument, an operator should consider whether the new instrument is basically the same as the old instrument it replaces, in which case you need only communicate to the persons using the device that it has been replaced. If, however, the new instrument operates on a different principle than the one it is replacing, it may be necessary to retrain the persons using it, develop new evaluations for the new equipment and re-evaluate the persons using it. The OQ plan should also spell out conditions under which re-evaluation will be required such as new tools, equipment and materials or when changes to policies, procedures, etc., require it.

ESTABLISH RE-EVALUATION INTERVALS

To continue to be qualified, individuals performing covered tasks must be periodically re-evaluated. Re-evaluation intervals should be based on factors such as:

1. How frequently is the covered task performed? More frequent performance may justify longer re-evaluation intervals;
2. How complex is the covered task? More complex tasks may require shorter re-evaluation intervals; and
3. What might the consequences be if the task is performed improperly? What is the worst that could happen if the covered task is not performed correctly, with “catastrophe” justifying shorter re-evaluation intervals and “nothing” justifying longer intervals?

Three years is the commonly accepted interval for most tasks. Intervals over 5 years will require justification. Tasks that are performed infrequently may require re-evaluation prior to performance.

Re-evaluation need not be by the same process as initial qualification but must address the knowledge, skills, abilities and AOCs for the task.

TRAINING

The OQ plan should describe how training fits into an operator's OQ program. While qualification is accomplished through evaluation, not training, some individuals will require training to provide them with the knowledge, skills and abilities necessary to pass the evaluations for a covered task. Some examples of individuals requiring training are:

1. New hires
2. Individuals taking on new tasks (transferred or promoted)
3. Individuals who fail one or more evaluations

Refresher training should also be considered for individuals who require post incident or for cause re-evaluation. This does not mean that every individual who performs a covered task needs to go through a training program before the individual can be re-evaluated. In fact, a common misconception is that training counts as evaluation for a task. Attendance records, certificates of completion, etc., from training classes are not evaluation records and cannot be used as the basis for qualifying an individual for any task. Where a training course includes written or oral exams, observations on-the-job or in a classroom simulation it is the records of these exams and/or observations that can be counted as evaluations for a covered task as long as they address the knowledge, skills, abilities and AOCs for the task.

RECORD KEEPING

An operator must maintain records to prove that the written OQ plan is being followed. For each individual who performs a covered task on your system, an operator must be able to produce a record of the date the individual passed each evaluation required for each covered task the individual performs, the tasks for which the individual is qualified and the method used to qualify the individual. Records of re-evaluations for cause, post incident and when required by re-evaluation intervals must also be maintained. The method may include any combination of written or oral tests, observation in classroom, on-the job or simulation, or other methods specified in the OQ program as accepted for the covered task. An operator should be able to provide federal or state inspectors with copies of the evaluation methods, e.g., tests or observation checklists used to qualify a person for the task, so that the inspector can determine if the evaluations address the appropriate knowledge, skills and abilities for the covered task. You can make an inspection easier on both you and the inspector by having a list of the knowledge, skills, abilities, AOCs and identifying where each is addressed in your observation checklists, test questions and other evaluation tools.

RECORD RETENTION

Records must be maintained for 5 years after the evaluation is no longer required for current qualification for any covered task. In other words, the record retention period is 5 years PLUS the re-evaluation interval specified in an operator's OQ plan for the covered task. For example, if an operator has a 3-year re-evaluation interval for a covered task, and an individual passes an evaluation on October 28, 2002, then re-passes the evaluation on October 28, 2005, the operator must maintain the record of the October 28, 2002 evaluation until October 28, 2010, since the date October 28, 2005, is the date on which the operator ceases to rely on the October 28, 2002 evaluation for qualification.

CONTRACTORS

Many operators use contractors to perform covered tasks on their pipeline systems. The operator qualification regulation requires that any individual who performs a covered task on a pipeline system be qualified for that task according to THE OPERATOR'S OQ plan. If an operator uses contractors for any covered task, the operator is responsible to ensure that each contractor employee who performs one or more covered tasks on your system is qualified for that task or is being directed and supervised by a qualified individual (if the operator's OQ plan allows for this).

Below are four approaches to handling contractor qualification:

1. Operator evaluates the contractor individuals using company evaluations.
2. Operator allows the contractor to evaluate its personnel using either the operator's evaluations for the tasks or the contractor's evaluations for the tasks. In the latter case, the operator should obtain copies of the contractor's evaluations and ensure they address the same knowledge, skills, abilities and AOCs as the operator's evaluations for the same tasks. Evaluations must be documented, e.g., test questions are written and observation evaluations include checklists indicating what is observed. These evaluations must be listed in the operator's OQ plan as evaluations accepted for these tasks.
3. Require the contractor to be evaluated by a third party (e.g., NACE, NCCER, etc.). The operator should contact the third party, obtain copies of the evaluations and verify that they address the same knowledge, skills, abilities and AOCs as the operator's evaluations for the same tasks. Evaluations must be documented, e.g., test questions are written and observation evaluations include checklists indicating what is observed. These evaluations must be listed in your OQ plan as evaluations you accept for these tasks.
4. Do not qualify contractor personnel; have one of the operator's qualified individuals observe and direct non-qualified contractor personnel.

RECORD KEEPING FOR CONTRACT PERSONNEL

If contractor personnel are used to perform a covered task, the operator must be able to produce records that the contractor personnel are qualified for the covered tasks they perform. The record requirements for contractors are exactly as described above for company personnel. The records must indicate the date the individual was qualified, the task(s) for which he/she is qualified and the method of qualification. The method must be a method listed in the operator's OQ plan as accepted under the OQ plan for the covered task(s) the individual performs.

Contractor qualification records can be kept by the operator, by the contractor or by a third party. If the operator elects to have the contractor or a third party keep the records, ensure that there are provisions for the operator to obtain the records should the contractor or third party go out of business. The operator must be able to produce these records for review for up to 5 years after the last date an individual performs a covered task on your system.

ENFORCEMENT PROTOCOLS

Included in Chapter 3 are the OQ enforcement protocols. These will be used by state and federal regulators to audit compliance with the OQ regulation. Included in these protocols are questions and guidance that provide insight into what the regulators expect to see when they audit an operator's OQ program. These protocols can be used to conduct a self-assessment of operator's OQ programs to ensure that the program addresses all the important components that the regulators expect to see in an acceptable OQ program.

CHAPTER II

DEFINITIONS

A number of terms contained in the OQ rule and its implementation found in 49 CFR Part 192, Subpart N and in Part 195, Subpart G, may be unclear and subject to different interpretations by operators and regulatory representatives. The following definitions have been obtained through consideration of gas and liquid pipeline regulations, dictionary definitions of a word or term, operator OQ plans, or other sources.

Ability

The capacity to do or act, physically and/or mentally.

Abnormal Operating Condition (AOC)

As defined in §§ 192.803 and 195.503, ***abnormal operating condition*** means a condition identified by the operator that may indicate a malfunction of a component or deviation from normal operations that may:

- (a) Indicate a condition exceeding design limits; or
- (b) Result in a hazard(s) to persons, property, or the environment.

[Note: To be qualified, an individual must be able to properly perform assigned covered task(s) and be able to recognize and react appropriately to any AOC that may (reasonably be expected to) be encountered while performing the covered task – whether the condition arises as a direct result of his/her work performance (e.g., be specific to the covered task being performed) or not (e.g., be generic in nature, but still observable because the individual is present on site).]

Accident

As defined in §195.50, an ***accident*** is a failure in a pipeline system which there is a release of the hazardous liquid or carbon dioxide transported resulting in any of the following:

- (a) Explosion or fire not intentionally set by the operator.
- (b) Release of 5 gallons (19 liters) or more of hazardous liquid or carbon dioxide, except that no report is required for a release of less than 5 barrels (0.8 cubic meters) resulting from a pipeline maintenance activity if the release is:
 - (1) Not otherwise reportable under this section;
 - (2) Not one described in §195.52(a)(4);
 - (3) Confined to company property or pipeline right-of-way; and
 - (4) Cleaned up promptly;
- (c) Death of any person;
- (d) Personal injury necessitating hospitalization;
- (e) Estimated property damage, including cost of clean-up and recovery, value of lost product, and damage to the property of the operator or others, or both, exceeding \$50,000.

Activity

A specific deed, action, function, or sphere of action.

Affects the Operation or Integrity of the Pipeline

Any activity, or omission of an activity, that could directly or indirectly result in a hazard to persons, property or the environment. As used in the safety context of the OQ rule, the phrase indicates activities that could result in an AOC that in turn could result in an unsafe operating condition.

Benchmark

A standard of measurement or evaluation.

Communicate

To convey information about; make known; to reveal clearly.

Compliance

Activity(ies) in accordance with a rule.

Contributed

Determined to be a factor.

Contributed to

A judgment by designated operator personnel, that the action or inaction of an individual(s) was a factor in the occurrence of an incident/accident.

Covered Task

As defined in §§ 192.801 and 195.501, a ***covered task*** is an activity, identified by the operator, that:

- (1) Is performed on a pipeline facility;
- (2) Is an operations or maintenance task;
- (3) Is performed as a requirement of this part; and
- (4) Affects the operation or integrity of the pipeline.

Criterion

A standard upon which a judgment is based.

Current

Belonging to the present time; now in progress.

Demonstrate

Provide tangible evidence.

Determine

To conclude after consideration, investigation, or calculation.

Direct

To take authoritative charge of or supervise; to control, order or command.

Direct Observation

Observation of an unqualified individual(s) during the performance of a covered task by an individual who is qualified to perform the task at hand. The observer must be in direct visual and verbal contact with the individual(s) and must be able to take immediate and effective corrective action if incorrect procedures or AOCs are observed.

Document

Prepare a retrievable record.

Emergency Response

(1) OQ requirements for emergency response are limited to that portion of the response performed on the pipeline facility, rather than at offsite locations remote from the facility (e.g., deploying booms miles away is not a “covered task”).

(2) Fire departments and other public responders are not required to be qualified and (*if not qualified*) must not perform covered operations or maintenance tasks on the pipeline facility.

(3) All other individuals employed by the operator shall be qualified to perform their assigned covered tasks or shall be under the direct observation of a qualified individual.

(4) Covered emergency response tasks are those tasks listed in §§ 192.615(a) and 195.402(e) that meet the four-part test specified in §§ 192.801 and 195.501.

Evaluation

As defined in §§ 192.803 and 195.503, ***evaluation*** means a process, established and documented by the operator, to determine an individual's ability to perform a covered task by any of the following:

- (a) Written examination;
- (b) Oral examination;
- (c) Work performance history review;
- (d) Observation during:
 - (1) Performance on the job,
 - (2) On-the-job training, or
 - (3) Simulations.
- (e) Other forms of assessment.

[Note: Any evaluation of an individual's qualifications must follow an objective, consistent process that documents the individual's ability to perform the covered task, including the ability to recognize and react to AOCs.]

Evaluator

Persons performing evaluations should possess the required knowledge (1) to ascertain an individual's ability to perform the covered tasks, and (2) to substantiate an individual's ability to recognize and react to AOCs that might surface while performing those activities. This does not necessarily mean that the person performing the evaluations should be physically able to perform the covered tasks themselves.

Excavation within a Pipeline Facility

Qualification for this covered task does not require the operator's employee or contractor employee to be proficient in the operation of excavation equipment. Covered tasks requiring qualification shall include:

- Verification of line location and depth
- One-call and underground facility owner/operator notifications
- Sloping/shoring
- Water removal
- Inspection

Third-party excavations that take place on the operator's pipeline facility shall be handled in accordance with the operator's damage prevention program requirements.

Identify

To establish the identity of; to ascertain the origin, nature, or definitive characteristics of.

Immediate Corrective Action

Taking steps to correct mistakes or abnormal or hazardous conditions without delay.

Incident

As defined in §191.3, ***incident*** means any of the following events:

(1) An event that involves a release of gas from a pipeline or of liquefied natural gas or gas from an LNG facility and

(i) A death, or personal injury necessitating in-patient hospitalization; or

(ii) Estimated property damage, including cost of gas lost, of the operator or others, or both, of \$50,000 or more.

(2) An event that results in an emergency shutdown of an LNG facility.

(3) An event that is significant, in the judgment of the operator, even though it did not meet the criteria of paragraphs (1) or (2).

Individual

A person who, on behalf of the operator, performs one or more covered tasks on a pipeline facility operated by the operator. This includes contractors, subcontractors, and operator employees.

Integrity

The ability of a pipeline to operate safely and to withstand the stresses imposed during operations.

Interval

The amount of time between two specified instants, events, or states.

Knowledge

Understanding gained through experience or study.

Knowledge, Skills, and Abilities (KSAs)

An appropriate combination of information, craftsmanship, and proficiency that allows an individual to perform covered tasks in a competent manner.

Maintain

To keep in a condition of good repair or efficiency.

Maintenance

The act of maintaining or the state of being maintained; the work of keeping something in proper condition; upkeep.

Observe

The act of watching; to watch or perceive. For purposes of conducting qualification evaluations using on-the-job (OTJ) performance, observations must include the interaction of the evaluator and qualification candidate to ensure that the candidate's knowledge of the procedures (and the reasons for the key steps therein) is adequate to ensure the continued safe performance of the task.

Operate

Starting, stopping and/or monitoring a device or system.

Operation

Actions taken to facilitate storage or movement of product through a regulated pipeline.

Operator

As defined in §§ 192.3 and 195.2, *operator* means a person who engages in the transportation of gas.

Perform

To begin and carry through to completion; to demonstrate in accordance with the requirements of; to accomplish (a covered task) in the proper, customary or established manner.

Person

As defined in §§ 192.3 and 195.2, *person* means any individual, firm, joint venture, partnership, corporation, association, State, municipality, cooperative association, or joint stock association, and includes any trustee, receiver, assignee, or personal representative thereof.

Pipeline

As defined in §§ 192.3 and 195.2, *pipeline* means all parts of those physical facilities through which gas moves in transportation, including pipe, valves, and other appurtenance attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies.

Pipeline Facility

As defined in §§ 192.3 and 195.2, *pipeline facility* means new and existing pipeline, rights-of-way, and any equipment, facility, or building used in the transportation of gas or in the treatment of gas during the course of transportation.

Prior

Preceding in time or order.

Process

A systematic series of actions directed to some end.

Program

A written description of processes to be followed; a clear delineation of authorities and responsibilities there under and the specific results expected to be achieved for the implementing organization.

Protocol

A standard methodology used to conduct inspections of regulated entities to determine conformance to specific or implied requirements prescribed by regulation.

Provision

The written description of the element(s) or approach employed by an operator to satisfy the requirements of the OQ Rule in §§ 192.805 and 195.505.

Pursuant

In accordance with (or) as a follow-up.

Qualified

As defined in §§ 192.803 and 195.503, *qualified* means that an individual has been evaluated and can:

- (a) Perform assigned covered tasks; and
- (b) Recognize and react to abnormal operating conditions.

Records

Recorded information or data on a particular subject, collected and preserved to demonstrate compliance with a rule or process requirement.

Regulation Construction

The regulatory structure consists, sequentially, of Title, Part, Subpart, Section, Paragraph, and Subparagraph.

Retain

To keep possession of, in a retrievable and useable condition.

Skill

A demonstrable competency to perform a given task well, arising from talent, training or practice.

Subject Matter Expert (SME)

An individual recognized as having a special skill or specialized knowledge of a process in a particular field, or of a piece of equipment.

Standard

A written document which is commonly used and accepted as a basis for judging acceptability of performance in the areas addressed.

Task

A piece of work assigned to or expected of an individual(s).

Training

An educational or instructional process (e.g., classroom, computer-based, or on-the-job) by which an individual's KSA level is improved. While not currently required by the OQ Rule, training is nonetheless fundamental to implementing many of the OQ Rule's requirements.

Work Performance History Review (WPHR)

A process established by the operator to ascertain the previously demonstrated competency of an individual to perform a covered task. Evaluation parameters should include:

- A search of existing records for documentation of an individual's satisfactory performance of the covered task in the past.
- Verification that the individual's WPH contains no indications of substandard work or involvement in an incident or accident to which the individual may have contributed by committing an error in the performance of a covered task.
- Verification and documentation that the individual has satisfactorily performed the covered task on a regular basis prior to October 26, 1999.

Written

To set down in writing.

CHAPTER III

OPERATOR QUALIFICATION PROTOCOLS FOR COMPLIANCE INSPECTION PROCESS

August 6, 2003

(Guidance for Small System Operators Material Included)

Statement on the Role of Protocols

The following protocols have been written to assist federal and state pipeline inspectors who are evaluating operators OQ programs. The protocols are not intended as enforcement instruments or to provide inspectors with additional enforcement authority, but rather are intended to provide inspectors with a template that they can use in the course of their inspections to ensure that operators comply with all elements of the OQ Rule. The objective of the protocols is to ensure that the prescriptive requirements of the rule have been followed by operators. This objective will be accomplished by rigorously inspecting each operator's records to ensure that all persons performing covered tasks on pipeline facilities are properly qualified and that sufficient documentation is maintained for these individuals. Proper record keeping is a key component of the OQ Rule. It is, therefore, important that inspectors be able to verify that records are maintained for all individuals performing covered tasks.

The OQ inspection form is organized around nine elements, including one for field verification. Each element has one or more associated protocol. Each protocol consists of 4 boxes: (1) a protocol number accompanied by the protocol subject or topic; (2) a protocol question(s) (sometimes followed by "Verify" statements); (3) guidance topics; and (4) the relevant rule language. The protocol topics have been structured into "Protocol Question(s)" to guide inspectors through the OQ inspection process. Each protocol question is followed by "Guidance Topics." The guidance topics list characteristics that the regulator would typically expect to find in an effective OQ program, and that are consistent with the intent of the regulatory language that accompanies each protocol. Some, all, or none of these characteristics may be appropriate depending on factors unique to each operator's OQ program and pipeline assets. Operators should be prepared to demonstrate that their programs address each of these characteristics or to describe how their program will be effective in their absence.

Many of the protocol questions are followed by "Verify" statements. These statements have been included because they can be directly traced to specific rule language. Therefore, compliance with each "Verify" statement should be confirmed. Many "Verify" statements (and protocol questions) are followed by a parenthetical statement that indicates that the statement or question is either "enforceable" or "non-enforceable". If the "Verify" statement or protocol question is listed as non-enforceable, the statement or question is not enforceable under the rule, but is nonetheless an important consideration for the operator. Finally, should the inspection process reveal violations of prescriptive requirements of the rule, regulators will take appropriate enforcement actions. Should deficiencies be identified in how operators address program characteristics, inspectors will seek evidence of violations related to these deficiencies. Significant inquiries seeking further information related to program characteristics will be communicated to the operator as an integral part of the inspection process.

ELEMENT 1

DOCUMENT PROGRAM PLAN, IMPLEMENTING PROCEDURES AND QUALIFICATION CRITERIA

Scope: This element addresses the characteristics of the operator’s OQ program and written plan, and considers how the operator developed its program, how contractors are considered when performing covered tasks, the treatment of AOCs, and the function of training in the initial and continuing qualification of individuals performing covered tasks.

Protocol #1.01	Application and Customization of “Off-the-Shelf” Programs
Protocol Question	Does the operator’s plan identify covered tasks and does it specify task-specific re-evaluation intervals for individuals performing covered tasks?
<p>Guidance Topics The rule requires that operators have a written qualification program that includes provisions to identify covered tasks and the intervals at which re-evaluation of the individual’s qualifications is needed. Investigation of the following characteristics is important to determine whether the requirements of the rule have been met:</p>	
<p>Small Operator Guidance Has the operator established re-evaluation intervals for each task? Are these intervals consistent with those of other operators? Small operators are likely to accept re-evaluation intervals developed by associations, consortia or other vendors.</p>	
<p>Available Material/Information</p> <ol style="list-style-type: none"> 1. Covered task list 2. Re-evaluation intervals for each covered task 3. Manual for Operations, Maintenance and Emergency Response. 	
Rule Requirement	§§ 192.805/195.505 Each operator shall have and follow a written qualification program. The program shall include provisions to: <ul style="list-style-type: none"> (a) Identify covered tasks; (g) Identify those covered tasks and the intervals at which evaluation of the individual’s qualifications is needed.

Protocol #1.02	Contractor Qualification
Protocol Question	Does the operator employ contractor organizations to provide individuals to perform covered tasks? If so, what are the methods used to qualify these individuals and how does the operator ensure that contractor individuals are qualified in accordance with the operator’s OQ program plan?
	Verify that the operator’s written program includes provisions that require all contractor and subcontractor individuals be evaluated and qualified prior to performing covered tasks, unless the covered task is performed by a non-qualified individual under the direction and observation of a qualified

Guidance Topics

The operator is responsible for ensuring that all individuals, whether employees or contractors, are qualified to perform covered tasks. Investigation of the following characteristics is important to determine whether the requirements of the rule have been met:

1. Methods have been approved by the operator to qualify contractor individuals to perform applicable covered tasks.
2. Provisions have been established and documented to ensure contractors are required to perform covered tasks consistent with the operator’s requirements.
3. Provisions have been established and documented to ensure qualification program requirements are followed by contractors.
4. Provisions have been established and documented to ensure contractor individuals performing the operator’s covered tasks are qualified.

Small Operator Guidance

Does the operator's written program include provisions to ensure that any contractor organizations used by the operator to perform covered tasks will have completed qualification of individuals prior to task performance?

Does the operator accept evaluations developed by its contractors or third parties? If yes, do these evaluations address the knowledge, skills, abilities and AOCs required for the task? If contractor or other third-party evaluations are accepted, operator should be able to produce

Available Material/Information

1. Written operator qualification plan

Rule Requirement	§§ 192.803/195.503 Qualified means that an individual has been evaluated and can: (a) Perform assigned covered tasks; and
	§§ 192.805/195.505 Each operator shall have and follow a written qualification program. The program shall include provisions to: (b) Ensure through evaluation that individuals performing covered tasks are qualified;

Protocol #1.03	Management of Other Entities Performing Covered Tasks
Protocol Question	Has the operator’s OQ program included provisions that require individuals from any other entity performing covered task(s) on behalf of the operator (e.g., through mutual assistance agreements) be evaluated and qualified
	Verify that other entities that perform covered task(s) on behalf of the operator are addressed under the operator’s OQ program and that individuals from such other entities performing covered tasks on behalf of the operator are evaluated and qualified consistent with the operator’s program

Guidance Topics

The rule requires that individuals performing covered tasks are evaluated and qualified to the requirements of the operator’s program. This applies to operator employees, contractors hired by the operator, or agents such as another entity that perform the covered tasks. Investigation of the following characteristics is important to determine whether the requirements of the rule have

The operator either (a) identifies provisions for assessing the evaluation criteria and methods used by other entities performing covered tasks to qualify an individual and to determine if the qualification is consistent with operator requirements, or (b) requires these	
Small Operator Guidance	
If the operator is party to any mutual aid agreements, has the operator determined whether individuals borrowed from the other operators are qualified if they are to perform covered tasks? The operator should be able to demonstrate that the evaluations administered by the other	
Available Material/Information	
Samples of evaluations from other operators accented by the operator for any task	
Rule Requirement	§§ 192.803/195.503 Definitions <i>Qualified</i> means that an individual has been evaluated and can: (a) Perform assigned covered tasks; and (b) Recognize and react to abnormal operating conditions

Protocol #1.04	Training Requirements (Initial Qualification, Remedial if Initial Failure, and Reevaluation)
Protocol Question	Does the operator’s OQ plan contain policy and criteria for the use of training in initial qualification of individuals performing covered tasks, and are criteria in existence for re-training and re-evaluation of individuals if qualifications are questioned? INon-Enforceable
Guidance Topics	
Training is not a required action under the provisions of the OQ Rule. However, training is a means to ensure that an individual performing a covered task has the necessary knowledge and skills needed to perform the task in a manner that ensures the safe operation of pipeline facilities, as required by the Pipeline Safety Act. As such, it should be incorporated in practices leading to the development and qualification of new employees, as well as in refreshing the knowledge and skills of individuals with considerable experience. Investigation of the following characteristics is important to determine whether the requirements of the rule have been met:	
The role represented by training in the qualification of individuals to perform covered tasks in:	
<ul style="list-style-type: none"> • Development of new hires, • Correction of problems encountered in evaluation or re-evaluation processes, • Correction of individual performance problems (e.g., contributing to an incident or accident through performance of covered tasks), • Managing changes in practices or procedures used in performing covered tasks. 	

Small Operator Guidance

The operator should be prepared to identify resources it uses to provide training to new employees or existing employees if necessary? This may include lists of courses offered in-house or by 3rd parties, (e.g., training entities, training providers, outside sources) as necessary. Any lesson plans, criteria for completion, etc for OJT training should be available for review. The operator should be prepared to discuss how it identifies and addresses the need for re-evaluation of its personnel should their qualifications become suspect.

Available Material/Information

Training might include in-house, 3rd party or on-the-job training for any of these types of training:

1. List of the types of training
2. Outlines of the classes
3. Lesson plans
4. Criteria for completion
5. Evaluation methods

Rule Requirement	§§ 192.803/195.503 Definitions <i>Qualified</i> means that an individual has been evaluated and can: (a) Perform assigned covered tasks; and (b) Recognize and react to abnormal operating conditions.
	§§ 192.805/195.505 Qualification Program Each operator shall have and follow a written qualification program. The program shall include provisions to: (b) Ensure through evaluation that individuals performing covered tasks are qualified;

Protocol #1.05	Written Qualification Program
Protocol Question	Did the operator meet the OQ Rule requirements for establishing a written OQ program and completing qualification of individuals performing covered tasks?
	Verify that the operator's written qualification program was established by April 27, 2001. [Enforceable] Verify that the written qualification program identified all covered tasks for the operator's operations and maintenance functions being conducted as of October 28, 2002. [Enforceable] Verify that the written qualification program established an evaluation method(s) to be used in the initial qualification of individuals performing covered tasks as of October 28, 2002. [Enforceable] Verify that all individuals performing covered tasks as of October 28, 2002, and not otherwise directed or observed by a qualified individual, were qualified in accordance with the operator's written qualification program. [Enforceable]

Guidance Topics

The rule requires that the operator meet certain prescriptive requirements for establishing a written qualification program, identifying covered tasks, and qualifying individuals to perform the identified covered tasks. Investigation of the following characteristics is important to determine whether the requirements of the rule have been met:

1. Clear responsibilities for implementing the elements of the program (e.g., evaluation & qualification, training, record keeping, contracting) have been established and communicated to managers and supervisors within the organization.
2. The OQ program requirements have been consistently implemented by the operator's organization.
3. Key terms have been defined and provided to all entities involved in implementing the OQ program to avoid ambiguities and misinterpretations.

Small Operator Guidance

The operator (or the person responsible for its OQ plan, the “OQ manager”) should be prepared to demonstrate knowledge and understanding of the provisions of its OQ plan. The operator should be able to explain how each of the provisions of the OQ plan will be implemented.

Available Material/Information

If the operator has chosen an off-the-shelf program, the operator may need to consult with the provider of the program for explanations and justifications to explain the provisions of the program.

Available Material/Information

Written operator qualification plan

Rule Requirement

§§ 192.809/195.509 General

(a) Operators must have a written qualification program by April 27, 2001.

(b) Operators must complete the qualification of individuals

ELEMENT 2
IDENTIFY COVERED TASKS AND RELATED EVALUATION METHODS

Scope: This element addresses the operator’s development of its covered task list and the evaluation methods employed to perform qualification of individuals.

Protocol #2.01	Development of Covered Task List
Protocol Question	How did the operator develop its covered task list?
	Verify that the operator applied the four-part test to determine whether 49 CFR Part 192 or 49 CFR Part 195 O&M activities applicable to the operator are covered tasks. [Enforceable]
	Verify that the operator has identified and documented all applicable
Guidance Topics	
<p>The rule requires that the operator identify covered tasks, which are those tasks covered by regulations that meet the four-part test set forth in the OQ Rule. Investigation of the following characteristics is important to determine whether the requirements of the rule have been met:</p> <ol style="list-style-type: none"> 1. The method used by the operator to develop its covered task list was thorough, documented, and considered all tasks performed to meet applicable regulatory requirements by employees and contractors. 2. The operator understands the personnel qualification-related activities that pose significant risk to the integrity of pipeline facilities (e.g., excavation and backfilling) and has considered them in the development of its covered task list. 3. The operator identifies how it ensures the addition, revision, or deletion of covered tasks to incorporate changes to operations or regulations. 4. The operator definition of operations and maintenance is consistent with regulatory requirements as they are applied to pipeline facilities. 5. The operator identifies the individuals who are qualified to perform the covered tasks. 	
Small Operator Guidance	
The operator should be able to show they have ensured its list of covered tasks performed on its system is complete. Has the operator ensured the covered task list that has been developed fits the operation and maintenance of the system?	
Available Material/Information	
List of covered tasks	
Rule Requirement	§§ 192.801/195.501 (b) For the purpose of this subpart, a covered task is an activity, identified by the operator, that: <ol style="list-style-type: none"> (1) Is performed on a pipeline facility; (2) Is an operations or maintenance task;

	§§ 192.805/195.505 Each operator shall have and follow a written qualification program. The program shall include provisions to:
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Protocol #2.02	Evaluation Method(s) (Demonstration of Knowledge, Skill and Ability) and Relationship to Covered Tasks
Protocol Question	Has the operator established and documented the evaluation method(s) appropriate to each covered task?
	Verify what evaluation method(s) has been established and documented for each covered task. [Enforceable]
	Verify that the operator's evaluation program ensures that individuals can perform assigned covered tasks. [Enforceable]
<p>Guidance Topics</p> <p>The operator is responsible for ensuring that all individuals whether employees or contractors, have been evaluated using one or more of the evaluation methods identified in the OQ Rule and can perform the covered tasks assigned to them. Investigation of the following characteristics is important to determine whether the requirements of the rule have been met:</p> <ol style="list-style-type: none"> 1. The evaluation methods used for qualification of individuals performing covered tasks are derived from the requirements of the covered tasks, and consider any unique needs (e.g., the inability to read) of the individuals being evaluated. 2. Evaluation methods are consistently applied across the operator's organization such 	

Small Operator Guidance

Does the operator’s plan list the evaluations that it will accept as evidence of qualification for each covered task?

The operator should be prepared to produce copies of the evaluations (tests, observation checklists, etc.) used to qualify individuals for each covered task and O&M procedures. The former need not be in the operator’s possession, however should be able to be produced within a reasonable # of days following an audit.

The operator should ensure the evaluations address critical skills and abilities in addition to critical knowledge needed to perform each task. For example, certain tasks require physical abilities and physical skills critical to accomplishing the covered task in addition to knowledge of how to perform the task. In that instance, the Operator should ensure its evaluation includes a test to address the physical ability of the individual to perform the task. The actual evaluation may involve a knowledge-based test, plus a practical application in the field to demonstrate physical ability and proficiency. Further, the testing for covered tasks included in the qualification program should also include questions on AOCs associated with the task to both

Available Material/Information

1. List of evaluations accepted for qualification for each covered task
2. Samples of each evaluation listed in #1

Rule Requirement

§§ 192.803/195.503 Qualified means that an individual has been evaluated and can:

- (a) Perform assigned covered tasks; and
- (b) Recognize and react to abnormal operating conditions.

Evaluation means a process, established and documented by the operator, to determine

an individual’s ability to perform a covered task by any of the following:

- (a) Written examination;
- (b) Oral examination;
- (c) Work performance history review;
- (d) Observation during:
 - (1) Performance on the job,
 - (2) On-the-job training, or
 - (3) Simulations; or
- (e) Other forms of assessment.

§§ 192.805/195.505 Each operator shall have and follow a written qualification program.

The program shall include provisions to:

- (b) Ensure through evaluation that individuals performing covered tasks are qualified;

ELEMENT 3
IDENTIFY INDIVIDUALS PERFORMING COVERED TASKS

Scope: This element addresses the operator’s documentation of an individual’s evaluation and qualification for performing a covered task and assurance at the job site that only qualified individuals are performing covered tasks. The element also addresses the operator’s development of provisions for performance of a covered task by an unqualified individual under the direction and observation of a qualified individual.

Protocol #3.01	Development and Documentation of Areas of Qualification for Individuals Performing Covered Tasks
Protocol Question	Does the operator’s program document the evaluation and qualifications of individuals performing covered tasks, and can the qualification of individuals performing covered tasks be verified at the job site?
	Verify that the operator’s qualification program has documented the evaluation of individuals performing covered tasks. [Enforceable]
	Verify that the operator’s qualification program has documented the qualifications of individuals performing covered tasks. [Enforceable]
<p>Guidance Topics</p> <p>The rule requires that the operator ensure through evaluation that individuals performing covered tasks are qualified, and that records supporting an individual’s current qualification be maintained while the individual is performing a covered task. Investigation of the following characteristics is important to determine whether the requirements of the rule have been met:</p> <ol style="list-style-type: none"> 1. Documentation of the qualification of individuals (including contractors) performing covered tasks is maintained and retrievable by work supervisors to support assignment of individuals to perform covered tasks. 2. Methods such as a current hard copy list, qualification card, central electronic 	

Small Operator Guidance

Can the operator produce the evaluation records for all individuals, employee and contractor, who performed a covered task on its system over the past 5 years (or October 28, 2002, whichever is later)? The operator should be able to provide dates that each individual passed each of the required evaluations, the name of the person who conducted the review, and a copy of a sample evaluation for review. Records may be kept by the operator, a contractor or a third party.

Is information on individuals and the tasks for which they are qualified available to supervisors? Lists should be available. Lists may be hardcopy, on-line, computer or any other media that provides current qualification information to supervisors. Lists need not be maintained at the job site as long as the documentation proves that the individuals performing the task are qualified or being directed and observed by a qualified person.

Available Material/Information

1. For each individual who performs covered tasks, written or electronic records of the date each individual completed each evaluation required for a task and the name of the person who administered the evaluation.

<p>Rule Requirement</p>	<p>§§ 192.805/195.505 Qualification Program Each operator shall have and follow a written qualification program. The program shall include provisions to: (b) Ensure through evaluation that individuals performing covered tasks are qualified;</p>
	<p>§§ 192.807/195.507 Recordkeeping Each operator shall maintain records that demonstrate compliance with this subpart. (a) Qualification records shall include: (1) Identification of qualified individual(s); (2) Identification of the covered tasks the individual is qualified to perform; (3) Date(s) of current qualification; and (4) Qualification method(s). (b) Records supporting an individual' s current qualification shall be maintained while the individual is performing the covered task.</p>

<p>Protocol #3.02</p>	<p>Covered Task Performed by Non-Qualified Individual</p>
<p>Protocol Question</p>	<p>Has the operator established provisions to allow non-qualified individuals to perform covered tasks while being directed and observed by a qualified individual, and are there restrictions and limitations placed on such activities? Verify that the operator' s program includes provisions for the performance of a covered task by a non-qualified individual under the direction and observation by a qualified individual. [Enforceable]</p>
<p>Guidance Topics The rule allows the performance of a covered task by a non-qualified individual if that</p>	

<p>individual is directed and observed by an individual qualified to perform the covered task. Investigation of the following characteristics is important to determine whether the requirements of the rule have been met:</p> <ol style="list-style-type: none"> 1. Consideration has been given to tasks that cannot or should not be performed by non-qualified individuals under the direction and observation of a qualified individual, due to their complexity or due to the critical nature of the task. 2. For tasks where appropriate, guidance on the span of control by qualified individuals of non-qualified individuals has been established on a task-specific basis. 	
<p>Small Operator Guidance</p> <p>Operators should ensure that non-qualified personnel are watched by a person qualified in the covered task being performed, who would be capable of interrupting the activity to take immediate corrective action should an unsafe action occur. The guidance above for larger operators also applies to small operators, The operator should be prepared to discuss this issue.</p>	
<p>Available Material/Information</p> <ol style="list-style-type: none"> 1. Written operator qualification plan. 2. If available, any written guidance to supervisors on how to direct and observe non-qualified individuals. 	
<p>Rule Requirement</p>	<p>§§ 192.805/195.505 Qualification Program</p> <p>Each operator shall have and follow a written qualification program. The program shall include provision to:</p> <p style="padding-left: 40px;">(c) Allow individuals that are not qualified pursuant to this subpart to perform a covered task if directed and observed by an individual that is</p>

ELEMENT 4
EVALUATE AND QUALIFY INDIVIDUALS PERFORMING COVERED TASKS

Scope: This element addresses the operator’s use of work performance history review (WPHR) as the sole method for initial evaluation of an individual’s qualification to perform covered tasks, and the identification of additional methods of evaluation to be used in addition to, or in place of, work performance history review subsequent to October 28, 2002. The element also addresses the operator’s development of AOCs for covered tasks and the methods employed to communicate AOCs for the purpose of qualification.

Protocol #4.01	Role of and Approach to “Work Performance History Review”
Protocol Question	Does the operator use WPHR as the sole method of qualification for individuals performing covered tasks prior to October 26, 1999, and does the operator’s program specify that work performance history review will not be used as the sole method of evaluation for qualification after October
	Verify that after October 28, 2002, WPHR is not used as a sole evaluation method. [Enforceable] Verify that individuals beginning work on covered tasks after October 26, 1999, have not been qualified using WPHR as the sole method of evaluation
<p>Guidance Topics</p> <p>The rule requires that the operator ensure through evaluation that individuals performing covered tasks are qualified, and that one or more of the methods identified in the rule are used for evaluation. WPHR is an allowed evaluation method for initial qualification of individuals performing covered tasks prior to October 26, 1999, but may not be used as a sole method of evaluation for subsequent evaluations, or for initial evaluations for qualification after October 28, 2002. Investigation of the following characteristics is important to determine whether the requirements of the rule have been met:</p> <ol style="list-style-type: none"> 1. The operator has established criteria for the use of WPHR as an evaluation method. 2. The operator did not use WPHR as an initial evaluation method, or used it sparingly and with documented justification. 3. The operator’s written program plan and/or evaluation documentation identifies that after October 28, 2002, WPHR will not be used as the sole method of evaluation for qualification, and that WPHR will not be used as a sole evaluation method for subsequent qualification. 	
<p>Small Operator Guidance</p> <p>If the operator uses WPHR as the sole method of qualifying individuals, were these evaluations performed prior to October 28, 2002?</p> <p>Does the WPHR documentation verify that the individual performed the task prior to October 26, 1999?</p> <p>Has a review of WPHR documentation verified that there is no reason to question an individual’s qualification for the task (e.g., records were searched, supervisors were</p>	

interviewed and no evidence of lack of competence was found)?

WPHR documentation should include:

1. The date and name of the person who conducted the review.
2. Records dated prior to October 26, 1999, showing a person performed a covered task.
3. Statements by supervisors, if supported by documentation, are acceptable if they address whether individuals had accidents attributable to them.
4. Reviews that show the individual has followed the company's operating procedures.
5. The individual has the ability to recognize and react to AOCs.

Additional Information could include:

1. Written performance appraisals showing no reason to suspect the person is not qualified.
2. That training and follow-up reviews have taken place.

Available Material/Information

Records of WPHR, including the date the review was conducted, the name of the person conducting the review, the covered task for which the individual is being qualified.

Rule Requirement	<p>§§ 192.803/195.503 Definitions Evaluation means a process, established and documented by the operator, to determine an individual's ability to perform a covered task by any of the following:</p> <ol style="list-style-type: none"> (a) Written examination; (b) Oral examination; (c) Work performance history review; (d) Observation during: <ol style="list-style-type: none"> (1) Performance on the job, (2) On the job training, or (3) Simulations; or (e) Other forms of assessment.
	<p>§§ 192.805/195.505 Qualification Program Each operator shall have and follow a written qualification program. The program shall include provisions to:</p> <ol style="list-style-type: none"> (b) Ensure through evaluation that individuals performing covered tasks are qualified;
	<p>§§ 192.809/195.509 General</p> <ol style="list-style-type: none"> (c) Work performance history review may be used as a sole evaluation method for individuals who were performing a covered task prior to October 26, 1999. (d) After October 28, 2002, work performance history may not be used as a sole evaluation method.

Protocol #4.02	Evaluation of Individual's Capability to Recognize and React to AOCs
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Protocol Question	<p>Are all qualified individuals able to recognize and react to AOCs?</p> <p>Has the operator evaluated and qualified individuals for their capability to recognize and react to AOCs?</p> <p>Are the identified AOCs those that the individual may reasonably anticipate and appropriately react to during the performance of the covered task?</p> <p>Has the operator established provisions for communicating AOCs for the purpose of qualifying individuals?</p>
	<p>Verify that individuals performing covered tasks have been qualified in recognizing and</p>

Guidance Topics

The ability to recognize and react to AOCs is required for qualification of individuals to perform covered tasks, whether the individuals are employed by the operator or are contractor individuals. The operator must demonstrate that the ability to recognize and react to AOCs is a part of each individual’s evaluation for qualification. Investigation of the following characteristics is important to determine whether the requirements of the rule have been met:

1. AOCs used for evaluation of individuals performing covered tasks consist of those AOCs that the operator can reasonably anticipate the individual will encounter while performing the covered task.
2. In addition to task-specific AOCs (i.e., those that may be caused by performance of the task), generic AOCs (i.e., those that may reasonably be encountered during performance of the task) have been identified and used in qualification in cases where special requirements and conditions for the task being performed must be considered.
3. Evaluation methods for both employees and contractor individuals include evaluation of the appropriate reaction of an individual upon recognition of an AOC.
4. The operator utilizes incident/accident investigations, employee feedback programs, or other approaches to ensure that the AOCs identified and used in evaluating individuals are representative of those that could reasonably be anticipated during performance of covered tasks.

Small Operator Guidance

The operator should have evaluated its systems and operations to determine credible AOCs and identified how it expects its personnel to react to these.

Evaluations used by the operator should address how to recognize and react to AOCs.

AOC evaluations may be broken out into a separate section of the evaluation or may be incorporated within those portions of the evaluations that address routine knowledge, skills and abilities.

The operator should be able to demonstrate that all AOCs that can reasonably be anticipated to be encountered related to the task being performed are addressed in the evaluations, particularly if off-the-shelf evaluations are being used.

Available Material/Information	
<ol style="list-style-type: none"> 1. Samples of the evaluations used to qualify individuals for covered tasks. 2. Only if the operator has identified AOCs, a copy of the AOC list. 	
Rule Requirement	<p>§§ 192.803/195.503 Definitions</p> <p>abnormal operating condition means a condition identified by the operator that may indicate a malfunction of a component or deviation from normal operations that may:</p> <ol style="list-style-type: none"> (a) Indicate a condition exceeding design limits; or (b) Result in a hazard(s) to individuals, property, or the environment

ELEMENT 5
CONTINUED/PERIODIC EVALUATION OF INDIVIDUALS PERFORMING COVERED TASKS

Scope: This element addresses the operator’s review of individuals performing covered tasks when the individuals were involved in an incident or accident, or when an individual is determined to be no longer qualified or the qualification of an individual is questionable. The element also addresses the re-evaluation interval for individuals performing covered tasks.

Protocol #5.01	Personnel Performance Monitoring
Protocol Question	Does the operator’s program include provisions to evaluate an individual if the operator has reason to believe the individual is no longer qualified to perform a covered task based on: <ol style="list-style-type: none"> 1. Covered task performance by an individual contributed to an incident or accident?
	Verify that the operator’s program ensures evaluation of individuals whose performance of a covered task may have contributed to an incident or accident. [Enforceable]
	Verify that the operator has established provisions for determining whether
<p>Guidance Topics</p> <p>The rule requires that the operator evaluate an individual if the operator has reason to believe that the individual’s performance of a covered task contributed to an incident as defined in Part 191 or an accident as defined in Part 195, or evaluate an individual if the operator has reason to believe that the individual is no longer qualified to perform a covered task. Investigation of the following characteristics is important to determine whether the requirements of the rule have been met:</p> <ol style="list-style-type: none"> 1. Methods and documentation exist to determine if individuals are performing covered tasks properly. These methods may include, but not be limited to: internal audits, third-party audits or inspections, assessments of procedure compliance, supervisor reviews, or assessment by a technical specialist. 2. The operator has addressed the rule requirements in the written program plan and has established implementation requirements that include criteria and documentation requirements. 	

<p>Small Operator Guidance</p> <p>The operator’s plan should include provisions to:</p> <ol style="list-style-type: none"> 1. Re-evaluate an individual involved in an accident, 2. Re-evaluate an individual if the operator has reason to believe that the individual is no longer qualified. <p>Reasons an individual may no longer be qualified may include:</p> <ul style="list-style-type: none"> • Injury or physical limitation, • Procedures seldom or rarely used by the individual, • Observation of an error or incorrect procedure, • An incident near-miss, • Evidence of an error or incorrect procedure, • Any other evidence the individual may need to be re-evaluated and re-qualified. 	
<p>Available Material/Information</p> <ol style="list-style-type: none"> 1. Written operator qualification plan 2. If available, any other documentation the operator has developed to implement these 	
<p>Rule Requirement</p>	<p>§192.805/195.505 Qualification Program</p> <p>Each operator shall have and follow a written qualification program. The program shall include provisions to:</p> <p style="padding-left: 40px;">(d) Evaluate an individual if the operator has reason to believe that the individual’s performance of a covered task contributed to an incident as defined in Part 191/accident as defined in Part 195;</p> <p style="padding-left: 40px;">(e) Evaluate an individual if the operator has reason to believe that</p>
<p>Protocol #5.02</p>	<p>Reevaluation Interval and Methodology for Determining the Interval</p>
<p>Protocol Question</p>	<p>Has the operator established and justified requirements for re-evaluation of individuals performing covered tasks?</p> <hr/> <p>Verify that the operator has established intervals for re-evaluating individuals performing covered tasks. [Enforceable]</p>
<p>Guidance Topics</p> <p>The rule requires that an operator identify covered tasks and the intervals at which evaluation of the individual’s qualification is needed. Investigation of the following characteristics is important to determine whether the requirements of the rule have been met:</p> <ol style="list-style-type: none"> 1. Basis for the re-evaluation intervals considering regulatory practice and/or WPHR for similar tasks, 2. Consideration of the need for task-specific re-evaluation intervals, 3. Justification of re-evaluation intervals considering at a minimum, the risk inherent in the task and the time between successive performances of the task by a qualified individual. 	
<p>Small Operator Guidance</p> <p>Has the operator established re-evaluation intervals for each task? Are these intervals consistent with those of other operators? Particularly if the small operator has accepted re-evaluation intervals developed by associations, consortia and other vendors, the operator should be able to</p>	

Available Material/Information

A list of re-evaluation intervals for each task.

Rule Requirement

§§ 192.805/195.505 Qualification Program

Each operator shall have and follow a written qualification program. The program shall include provision to:

- (g) Identify those covered tasks and the intervals at which evaluation of the individual's qualifications is needed.

ELEMENT 6
MONITOR PROGRAM PERFORMANCE; SEEK IMPROVEMENT OPPORTUNITIES

Scope: This element addresses the operator’s plans for continued improvement of the OQ program and investigates mechanisms established for periodic review and revision of the program when warranted.

Protocol #6.01	Program Performance and Improvement
Protocol Question	Does the operator have provisions to evaluate performance of its OQ program and implement improvements to enhance the effectiveness of its program? [Non-Enforceable]
<p>Guidance Topics Although there are no specific requirements in the rule for the operator to review the OQ program periodically and seek to implement improvements over time, it is reasonable that improvements will be identified that should be incorporated into the program as the program matures and the operator gains valuable feedback through a continuing review of performance trends. This item investigates whether the operator has anticipated the evolutionary nature of its program and has established provisions to identify and assess improvement opportunities and implement those that will result in greater program effectiveness and an increased level of safety. Investigation of the following characteristics is important to determine whether the requirements of the rule have been met:</p> <ol style="list-style-type: none"> 1. The operator has documented in its OQ plan a periodic requirement for program review. 2. The operator is actively involved in industry groups that seek to improve OQ programs and establish practices that will be identified and documented in consensus standards. 3. A review process has been established by the operator to assemble feedback on program effectiveness and needed improvements, and to periodically assess the feedback to identify improvements that should be made to the OQ program. 	
<p>Small Operator Guidance RESPONSIBLE FOR THE OQ PROGRAM SHOULD PERIODICALLY REVIEW THE ADEQUACY OF THE WRITTEN OQ PLAN PROVISIONS. THE OPERATOR SHOULD BE PREPARED TO CHANGE AND UPDATE THE PLAN AS DEEMED NECESSARY. THE PERSON RESPONSIBLE FOR MANAGING THE OQ PROGRAM SHOULD COMMUNICATE CHANGES THAT AFFECT COVERED TASKS TO THE INDIVIDUALS WHO PERFORM THE TASKS. AT A MINIMUM IT IS RECOMMENDED TO REVIEW THE OQ PLAN ALONG WITH</p>	
<p>Available Material/Information None</p>	
Rule Requirement	§§ 192.805/195.505 Qualification Program Each operator shall have and follow a written qualification program.

**ELEMENT 7
MAINTAIN PROGRAM RECORDS**

Scope: This element addresses how the operator implements the rule requirements for retention of records and supporting documentation that establishes the qualification of individuals performing covered tasks and the covered tasks that individuals are qualified to perform.

Protocol #7.01	Qualification “Trail”(i.e., covered task, individual performing, evaluation method(s), continuing performance evaluation, reevaluation interval, reevaluation records).
Protocol Question	Does the operator maintain records in accordance with the requirements of 49 CFR 192, Subpart N, and 49 CFR 195, subpart G, for all individuals performing covered tasks, including contractor individuals?
	Verify that qualification records for all individuals performing covered tasks include the information identified in the regulations. [Enforceable]
	Verify that the operator’s program ensures the retention of records of prior qualification and records of individuals no longer performing covered tasks for at least five years. [Enforceable]
	Verify that the operator’s program ensures the availability of qualification records of individuals (employees and contractors) currently performing covered tasks, or who have previously performed covered tasks. [Enforceable]
Guidance Topics	
<p>The rule requires certain information to be included in records of qualification for individuals performing covered tasks, and that these records be retained for at least five years. Although not identified specifically, records that are specified in the OQ plan and documentation that is required to demonstrate compliance with rule provisions should logically have retention requirements as part of the OQ program implementation. Investigation of the following characteristics is important to determine whether the requirements of the rule have been met:</p> <ol style="list-style-type: none"> 1. Supporting documentation for implementation of the OQ program, including documentation of: <ol style="list-style-type: none"> a. The methodology for identifying covered tasks; b. The re-evaluation interval for each covered task and the basis for the re-evaluation interval chosen; and <ol style="list-style-type: none"> c. The approach used to select individuals for evaluation and qualification. 2. The operator has considered the need for periodic back-up of qualification database information, whether in-house databases or industry databases, to ensure continued availability of information required to meet rule provisions. 3. The operator has established provisions to ensure the continued presence and availability of contractor records for individuals currently performing, or who have previously performed, covered tasks for the operator. 	
Small Operator Guidance	
The operator should be able to produce evaluation records demonstrating that each individual,	

employee and contractor, who performed a covered task on its system over the past 5 years (or October 28, 2002, whichever is later) was qualified at the time they performed the covered task. The 5-year record retention period for an evaluation begins the moment the individual ceases to perform the covered task for the operator (e.g. is transferred, retires, resigns, is fired or dies) or the individual is re-evaluated so that the older evaluation is no longer relied on for current qualification. For example, an evaluation passed in 2003 that is re-evaluated in 2006 must be retained until 2011. The operator should be able to provide dates that each individual passed each of the required evaluations and a copy of a sample evaluation for review.

Records may be kept by the operator, a contractor or a third party. If maintained offsite the operator should be able to produce the records within a reasonable time.

Available Material/Information

1. For each individual who performs covered tasks, written or electronic records of the date each individual completed each evaluation required for a task and the name of the person who administered the evaluation.
2. Samples of each evaluation listed in #1.

Rule Requirement

§§ 192.807/195.507 Recordkeeping
 Each operator shall maintain records that demonstrate compliance with this subpart.

- (a) Qualification records shall include:
 - (1) Identification of qualified individual(s);
 - (2) Identification of the covered tasks the individual is qualified to perform;
 - (3) Date(s) of current qualification; and
 - (4) Qualification method(s).
- (b) Records supporting an individual's current qualification shall be maintained while the individual is performing the covered task. Records of prior qualification and records of individuals no longer performing covered tasks shall be retained for a period of five years.

**ELEMENT 8
MANAGE CHANGE**

Scope: This element addresses how the operator manages changes to procedures, tools, standards and other changes to the OQ program and how these changes are incorporated into the qualification and evaluation methods for individuals performing covered tasks, and the methods employed to communicate changes to individuals performing covered tasks, whether operator employees or contractors.

Protocol #8.01	Management of Changes (to Procedures, Tools, Standards, etc.)
Protocol Question	Does the operator’s OQ program identify how changes to procedures, tools standards and other elements used by individuals in performing covered tasks are communicated to the individuals, including contractor individuals, and how these changes are implemented in the evaluation method(s)?
	Verify that the operator’s program identifies changes that affect covered tasks and how those changes are communicated, when appropriate, to affected individuals. [Enforceable]
	Verify that the operator’s program identifies and incorporates changes that affect covered tasks. [Enforceable]
	Verify that the operator’s program includes provisions for the communication of changes (e.g., who, what, when, where, why) in the qualification program to the affected individuals. [Enforceable]
	Verify that the operator incorporates changes into initial and subsequent evaluations. [Enforceable]
	Verify that contractors supplying individuals to perform covered tasks for the operator are notified of changes that affect task performance and thereby the qualification of these individuals. [Enforceable]
Guidance Topics	
<p>The rule requires that the operator communicate changes that affect covered tasks to individuals performing those covered tasks. In order to perform this effectively, the operator must have a change management methodology so that it knows when changes are occurring, what changes have an impact on covered task performance, the relative significance of the change and how it affects the continued qualification of individuals, and mechanisms to effectively communicate changes to qualified individuals. Investigation of the following characteristics is important to determine whether the requirements of the rule have been met:</p> <ol style="list-style-type: none"> 1. Identification of the methods used to communicate changes to affected individuals. 2. Means of ensuring that affected personnel are kept up to date on current requirements of the OQ program. 3. Changes to the OQ plan and revisions to the plan are made and communicated to the appropriate individuals. 	

Small Operator Guidance

Operators must consider how changes to their O&M procedures, systems and equipment may affect their OQ plan.

The operator should periodically identify changes which need to be communicated to its workers and addressed in its OQ plan.

The operator should ensure the person responsible for managing the OQ program is:

- Aware of the need and the importance of ensuring qualified personnel are prepared for changed conditions,
- Changes affecting covered tasks are communicated to the individuals who perform the task,
- Fully aware of the written OQ plan provisions to address and manage changes to its systems.

If changes have occurred that trigger this provision, have the evaluations for affected tasks been adjusted to address the change?

Available Material/Information

1. Written OQ Plan, task list and evaluation requirements
2. If changes have occurred since the past inspection that triggered changes to any of the above, documentation of what changes were made and why should be reviewed, if available.

Rule Requirement

§ §192.805/195.505 Qualification Program

Each operator shall have and follow a written qualification program. The program shall include provisions to:

(f) Communicate changes that affect covered tasks to individuals performing those covered tasks;

ELEMENT 9
FIELD INSPECTION OF OQ PROGRAM IMPLEMENTATION

Scope: This element is intended to be a comprehensive review and overview of the operator’s OQ program application to O&M covered tasks conducted at pipeline facilities and field offices. It is directed towards objective evidence of task performance, qualification of individuals performing covered tasks, field supervisor knowledge of responsibilities assigned under the operator’s OQ program, and similar factors.

Company :		Field Location/Address:				
Date:		System Information:				
Number of Company Employees Under OQ Program at This Location:		_____				
Number of Contractor Personnel Under OQ Program at This Location:		_____				
Inspection Team:		Company Personnel in Interview/Phone Numbers:				
1. _____		1. _____				
2. _____		2. _____				
3. _____		3. _____				
4. _____		4. _____				
5. _____		5. _____				
Area Inspected			Results Acceptable?			
			Yes	No	N/A	N/I
1. Field/job supervisor responsibilities						
a. Is knowledgeable of OQ program responsibilities			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Conducts frequent observation of covered task performance			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Knows required actions to take when individual’s performance of covered task may have contributed to incident/accident			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Knows factors to consider and required actions to take when individual is identified that may no longer be qualified to perform covered task			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Conducts verification of qualification status of individuals per OQ program requirements for employees and contractors			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Ensures establishment of direct observation and control of unqualified individuals			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Establishes span of control for unqualified individuals appropriate to task:knows company policy			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Procedures for performance of covered tasks						
a. Procedures are present at field location for covered task performance			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Procedures used are same (content, date issued) as approved O&M manual			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Contractor procedures are approved by operator for use			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Individuals are observed adhering to procedures when performing CTs			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Proper tools, techniques, processes employed per procedures			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Abnormal operating conditions						
a. Individuals performing covered tasks know how to recognize AOCs			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

b. Individuals performing covered tasks know how to react to AOCs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Management of change				
a. Supervisors are knowledgeable of communication process for changes in procedures, tools, techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Individuals performing covered tasks are knowledgeable of communication process for changes in procedures, tools, techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Evaluation processes				
a. Use of WPHR to evaluate employees/contractors consistent with OQ plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Supervisor is involved in evaluation process consistent with OQ plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Program improvement				
a. Problems experienced in field with OQ program implementation are fed back to OQ program management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Process for feedback of program improvement exists from field to HQ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Response provided by HQ to feedback from field	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Field/job supervisor concerns with contractor qualifications identified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Consistency of implementation of OQ program requirements				
a. Implementation of program requirements consistent with Company policy (procedures/processes for performing covered tasks)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Third Party/Internal Audits or Inspections				
a. Field audits/inspections of covered task performance occur as specified in OQ program (frequency/feedback of results)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For “*No*” answers, use supplemental sheet to explain details and identify deficiencies that may require enforcement action. Ensure numbering is consistent with Field Inspection Protocol Checklist for OQ Inspection form. “*N/A*” means item is not applicable to the operator’s OQ program. “*NI*” indicates “not inspected.”

1. Field/job supervisor responsibilities

The inspector should review the operator’s OQ program to determine if there are any responsibilities that are not applicable (N/A). For each of the responsibilities listed, observe the performance of or discuss them with the field or job supervisor to determine the acceptability or deficiencies associated with each item.

- a. Many operators identify the job supervisor, facility supervisor, project lead, team leader or other front-line supervisory position as the key field position responsible for ensuring the correct implementation of the OQ program. This item is designed to ensure that this individual is knowledgeable of his/her responsibilities.
- b. Supervisors are also often tasked with observing the performance of individuals in their work group for use in the operator’s performance appraisal program. This item is designed to determine how much of that performance observation is directed toward ensuring the correct performance of covered tasks without deficiencies in adherence to procedures, etc.
- c. One consideration of the OQ requirements is the determination of the need for re-evaluation of an individual if it is believed that the individual’s performance of a covered task has led to an

incident or accident. This item investigates the role of the individual's supervisor in that process and the determination of whether or not this role is consistent with the program requirements.

- d. Another consideration of the OQ requirements is determining whether an individual is no longer qualified to perform a covered task, and requires re-evaluation. This item investigates the role of the individual's supervisor in that process, his/her knowledge of the criteria (if any) that the operator has established to make that determination, and the determination of whether or not this role is consistent with the program requirements.
- e. A covered task must be performed by a qualified individual, or by an unqualified individual who is directed and observed by a qualified individual. If possible, observe the method used to verify the qualifications of individuals, especially contractor individuals, performing covered tasks to see if it is consistent with OQ program requirements. The supervisor may also demonstrate the method used to accomplish this item. Also, confirm that hardcopy records of an individual's qualification are retained as part of the job/task information.
- f. The OQ requirements allow a covered task to be performed by an unqualified individual who is directed and observed by a qualified individual. If possible, observe the method by which the supervisor establishes the direction and control of unqualified individuals by a qualified individual. The supervisor may also describe the method employed to establish this requirement.
- g. Depending on the complexity of the covered task, the span of control of unqualified individuals performing covered tasks by qualified individuals may be as low as one-on-one or as high as five-on-one. Most operators do not specify task-specific spans of control, but leave the determination to the field supervisor. The field supervisor should be requested to describe what criteria, formal or informal, are used to establish span of control.

2. Procedures for performance of covered tasks

- a. The inspector should observe the performance of covered tasks during an operations or maintenance activity and determine if procedures prepared by the operator to conduct the task(s) are present in the field and are being used as necessary to perform the task(s).
- b. The inspector should confirm that the procedures being used in the field are the same (content, revision number, and/or date issued) as the latest approved procedures in the operator's O&M manual.
- c. The inspector should confirm that the procedures employed by contractor individuals performing covered tasks are those approved by the operator for the tasks being performed.
- d. It is important to observe individuals actually performing covered tasks, to ensure that procedure adherence is accomplished and that "work-arounds" are not employed that would invalidate the evaluation and qualification that was performed for the individual in performance of the task.
- e. Procedures list the tools, techniques, and processes employed to accomplish covered tasks. The inspection should determine if all of the tools and special equipment are present at the job site and are properly employed in the performance of the task, and if techniques and special processes are specified, that these are used and followed as described.

3. Abnormal operating conditions

- a. The definition of a qualified individual in the OQ rule includes the ability to recognize and react to AOCs. Operators differ in the ways AOCs are defined; some define only a set of “generic” AOCs that are applicable to all covered tasks, while others define generic and task-specific AOCs. The evaluation process for AOCs also differs, depending on whether the operator has developed a training module for AOCs, or simply defines AOCs as part of the evaluation process. This area is especially important for contractors, since those individuals who were qualified as part of an operator-recognized consortium such as NCCER, MEA, INGAA, OQSG or others may be qualified to a different set of AOCs than those that are applied to operator employees. Other operators may require that all contractors attend operator-specific AOC training prior to work. The inspection should focus on an individual’s knowledge of the AOCs applicable to the covered task being performed and the ability to recognize those AOCs. The information gained during the inspection should be compared to the requirements for qualification applied during the evaluation process for the subject covered task. If possible, at least one employee individual and at least one contractor individual should be sampled.
- b. As important as recognizing AOCs during the performance of a covered task, is the reaction of the qualified individual to the AOC once it occurs. Depending on the condition, reactions may vary from immediately turning a valve or shutting off an ignition source, to vacating an area and notifying supervisory personnel. Additionally, the required reaction may vary depending on whether the individual is an operator employee or is a contractor. The inspection should focus on the required reactions for all of the AOCs for the covered task being performed, and noting these for comparison to the required reactions in procedures or training modules, if identified. As in a. above, if possible, at least one employee individual and at least one contractor individual should be sampled.

4. Management of change

- a. One of the seven key elements of an OQ program must be the communication of changes that affect covered tasks to those individuals performing covered tasks. Changes may occur in procedures used to perform covered tasks, in equipment or tools used in task performance, or in techniques or special processes that improve pipeline safety. Often these changes are initiated at the headquarters level of the operator; changes may also result from feedback from the field locations where the tasks are actually performed. This inspection topic investigates the knowledge of field supervisors on the way changes are communicated, both to the supervisor from other locations and from the supervisor to other locations. Timeliness of communications should also be investigated to determine if the communication process impedes the timely dissemination of changes to field personnel.
- b. Along with communication of changes to field supervisors, individuals who perform covered tasks should also understand how changes are communicated to them; from the supervisor, directly from the changing authority, etc. If there are contractors performing covered tasks during the field inspection, they should also be sampled concerning changes that affect the tasks they are hired to perform.

5. Evaluation processes

- a. If an operator employed WPHR as a method of qualification of employees performing covered tasks prior to October 27, 1999 (transitional qualification in accordance with the rule), the inspector(s) should examine field records for several randomly selected individuals who were qualified in this manner to ensure that qualification requirements specified by the operator in its

OQ program for WPHR were met satisfactorily. If there are contractor individuals performing covered tasks, they should be asked what evaluation method was used for their qualification. If WPHR was used for qualification of any contractor individuals, this should be noted for follow-up with the operator's OQ program coordinator.

- b. Depending upon the operator's OQ program, the individual's supervisor may or may not be involved in the evaluation process for qualification of an individual to perform a covered task. If the program indicates the involvement of the supervisor, the inspector(s) should determine if the supervisor is performing the evaluation requirements specified in the program.

6. Program improvement

- a.-d. This area investigates the communication of OQ program implementation problems and suggested improvements between the headquarters individual or committee established by the operator for OQ program management and the field individuals who actually have to make it work. The most important of these items is associated with the suitability of contractor qualifications, especially the identification and quick resolution of qualification issues.

7. Consistency of implementation of OQ program requirements

- a. This area is applicable only if the inspection is broad enough in scope to cover more than one district of the operator's company or more than one subsidiary that is covered under an overall OQ program. The inspector should select several covered tasks and review the methods or procedures for performing the tasks to determine if the requirements for task performance are the same. If there are differences, the reason for these differences should be discussed with the operator's representative.

In certain cases, the operator's plan allows for different OQ requirements between segments of its company, especially where a merger or acquisition has recently taken place. If this is the case, then the inspector should determine whether or not an individual from one district or subsidiary is qualified to perform a covered task in a different area of the company without reevaluation.

8. Third-party/internal audits or inspections

- a. If the operator's OQ program specifies that third-party or internal audits will be performed of field activities, the inspector should ask the operator representative if he/she is aware of the audit process and audit results, and determine if these results identify any problem areas with program implementation.

FOREWORD

An industry-government small operator task force reviewed several model plans and concluded that the following model plan provides an excellent model that small operators can use as a model for their OQ compliance programs. This model written operator qualification plan is provided as an example for small operators of natural gas, LP, master meter, and hazardous liquid pipelines and of what the end result of the processes described in the “How to” guide might look like.

The Iowa Association of Municipal Utilities (IAMU) developed this plan following processes similar to those described in the “How to” guide and has graciously made it available for your use. Some noteworthy features of the plan are:

- Each of the 8 minimum requirements of regulation is addressed,
- A covered task list of most covered tasks performed on a typical natural gas distribution system is included,
- Examples of competencies and skills (equivalent to the knowledge, skills abilities and abnormal operating conditions in the “How to” guide) required for each covered task are included,
- Examples of evaluation method (written test or observation checklist) for each competency and skill are included,
- Examples of abnormal operating conditions for each task are addressed in the evaluations, and
- Training courses that may be used to provide the necessary competencies and skills to individuals that need training to become qualified are listed.

Note that this plan was developed for IAMU’s members who are operators of natural gas distribution systems. Operators will need to modify it to fit their systems, which means removing those tasks and evaluations that are not applicable to their systems and adding covered tasks, competencies and evaluations for other covered tasks performed on master meter, LP, hazardous liquid and gas transmission pipelines that may not be included in this plan. Information on covered tasks, competencies and/or evaluations for master meter, LP, hazardous liquid and gas transmission pipelines may be available from trade associations or vendors.

Operators are not required to use this plan, however they may use as much or as little of it as desired. If operators choose to use all or part of this plan, they must ensure that it fits its unique system and procedures. Operators other than IAMU members using this plan will be responsible for all changes and updates required of this plan. **Intrastate operators should also check with their state pipeline safety regulators regarding additional requirements specific to the state in which they operate.**

- Operators should review the covered task list, deleting tasks that are not performed on their system and adding any activity that is performed on their system that is not currently listed. For example, operators of an all-plastic system will not perform cathodic protection tasks. Operators of gas transmission or hazardous liquid pipelines can contact trade associations or vendors for information on covered tasks.
- Operators should review the competencies and skills for each covered task that is performed on their system to ensure the competencies and skills and the evaluations for each addresses what an individual must know to perform each covered task according to their operating and maintenance procedures. Feel free to substitute other training and evaluations for any or all of those listed in the IAMU plan if you feel that other training and evaluations better suit your needs. For tasks identified that are not in the IAMU plan operators will have to assess the competencies and skills and develop or acquire appropriate evaluations.
- Operators should ensure that the recommended re-evaluation frequencies are appropriate for their system based on the factors described in the “How to” guide. January 2004

Utility/Company

Plan Administrator (Protocol 3.01 §192.805/195.505)

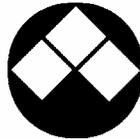
NATURAL GAS OPERATOR QUALIFICATION PROGRAM



Adopted _____
Date

NATURAL GAS OPERATOR QUALIFICATION PROGRAM

A Model Program from the



IOWA
ASSOCIATION OF MUNICIPAL
UTILITIES

**1735 NE 70th Avenue
Ankeny, Iowa 50021-9353
515/289-1999**

Disclaimer of Warranty and Limitation of Liability

This model program has been developed by the Iowa Association of Municipal Utilities (IAMU) in conjunction with Minnesota Municipal Utilities Association (MMUA), Iowa Utilities Board (IUB), Minnesota Office of Pipeline Safety (MOPS) and both of the Natural Gas Safety Committees of IAMU and MMUA to promote the safe operation of municipal gas systems and compliance with federal regulation of gas pipeline operators.

This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. It is furnished with the understanding that neither the Association nor its licensed agent is engaged in rendering legal or other professional service. If legal advice or other professional or expert assistance is required, the services of a competent professional person should be sought. This publication is provided "as is" without warranty of any kind, either expressed or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. The entire risk as to the quality, performance, and accuracy of the manual is with the holder.

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PREFACE

This program has been developed by the Iowa Association of Municipal Utilities (IAMU) in conjunction with the Minnesota Municipal Utilities Association (MMUA) and their Natural Gas Safety Committees, the Iowa Utilities Board, and the Minnesota Office of Pipeline Safety, and will continually be amended and updated as deemed necessary.

In an effort to promote employee and gas system safety, the creation of this important operator qualification program was developed to assist operators in fulfilling the regulations set by the Office of Pipeline Safety, U.S. Department of Transportations.

It is our intent to include all covered tasks, and procedures in this program. However, managers/supervisors are cautioned that some of the tasks that are performed on your system may be unique and therefore will have to be modified to your system.

It is the intent of this program that all persons in this OQ program are required to test for the fundamentals of natural gas, as a prerequisite to all competencies and skills. A training program for the fundamentals of natural gas must include: characteristics and hazards of natural gas, potential ignition sources: indoor and outdoor, recognizing emergency conditions and recognizing and reporting natural gas leaks.

Division 1 has sections that were intentionally left blank. These blanks are to be filled in by the Plan Administrator to customize the program to your system.

Division 7 is unique to this program and is intended for actual procedures and training materials used if different from the IAMU program; examples are the Fisher Regulator School and the American Meter School.

Updates, changes, and other modifications to this program, other than those made by the Plan Administrator, will be done at IAMU's office and forwarded to the operators as expediently as possible for IAMU and MMUA members only. Plan Administrator is responsible for implementation and modifications in this OQ program and is also responsible for all required documentation in support of this program. This would include documentation from outside contractors, mutual aid agreements and qualification.

(Protocols 1.01, 3.01, 5.02, 6.01, 8.01 §192.805/195.505)

If you wish to use Midwest Energy Association (MEA) training materials they may be obtained by contacting IAMU or directly to MEA at 952/832-9915, and using the code "SMOQ."

Questions about the IAMU program and training materials used in this program should be directed to the IAMU offices by contacting David Hraha at 515/289-1999.

NATURAL GAS OPERATOR QUALIFICATION PROGRAM

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INTRODUCTION

The gas operator qualification program is governed by the regulations of the U.S. DOT. Those regulations are found in 49-CFR-191 and 192.

Format of this Program

This program is separated into eight divisions:

Division 1. PURPOSE AND SCOPE

The first part of the program explains the purpose and scope of the program. It explains the different methods for qualification, re-evaluation, notices of changes, training, record keeping, mutual aid, and also the time frames for re-qualification.

Division 2. COVERED TASKS

This division explains the procedures required of the gas operator, and the covered tasks associated with the procedure.

Division 3. REQUIRED COMPETENCIES AND SKILLS

In this division is an outline of the required competencies and skills, the method for qualification, the time frames for re-qualification, and suggested training references, these are suggested training references, if other training material is used, the operator should list it, and give an outline of it in Division 7.

Division 4. RECORD KEEPING

This division contains both the individual summary, which belongs to the individual performing the covered tasks, and the group summary, which belongs to the system that owns the plan.

Division 5. HANDS-ON PERFORMANCE QUALIFICATION (Forms)

Division five contains evaluation forms used in the evaluation of the hands-on skills and other documentation processes.

Division 6. WRITTEN EVALUATION OF COMPETENCIES AND SKILLS

In this division is a copy of the written evaluations used to help determine knowledge retention.

Division 7. TRAINING MATERIALS

This division is a list of training materials that operators use other than those found in Division 8 that are used in the qualification process.

Division 8. COURSE DESCRIPTIONS

The eighth division contains an outline of Midwest Energy Association's (MEA) training modules, which is reproduced by the Iowa Association of Municipal Utilities through an Agreement by the two parties.

PROTOCOLS/RULE REQUIRMENTS

Protocol questions, found in Appendix 1, are utilized to inspect OQ programs. The tables below reference divisions of the IAMU plan where the protocols are addressed.

PROTOCOL	RULE REQUIRMENT	IAMU SECTION ADDRESSED IN
1.01	§192.805/195.505	Preface, 1.15, Divisions 2, 3
1.02	§192.803/195.503 §192.805/195.505	1.3
1.03	§192.803/195.503	1.14
1.04	§192.803/195.503 §192.805/195.505	Preface, 1.9, 1.11, 1.14 Division 7
1.05	§192.809/195.509 Amdt 192-90, 8-20-01	Division 3
2.01	§192.801/195.501 §192.805/195.505	1.2, 1.10, 1.15, Division 2
2.02	§192.803/195.503 §192.805/195.505	Division 3
3.01	§192.805/195.505 §192.807/195.507	Cover page, Preface, 1.3, 1.12, Divisions 4a, 4b
3.02	§192.805/195.505	1.8, Division 5
4.01	§192.803/195.503 §192.805/195.505 §192.809/195.509	1.1, 1.7, Divisions 3, 5
4.02	§192.803/195.503	1.3, 1.9, 1.11, 1.16, Division 8
5.01	§192.805/195.505 Incident 191 Accident 195	1.9
5.02	§192.805/195.505	Preface, 1.15, Division 3
6.01	§192.805/195.505	Preface, 1.17, Division 5
7.01	§192.807/195.507	1.3, 1.12
8.01	§192.805/195.505	Preface, 1.10, Division 5 & 7

Acknowledgements

The basic content of the operator qualification program was developed by the Iowa Association of Municipal Utilities, Minnesota Municipal Utilities Association several operators and pipeline safety staff located in Iowa and Minnesota.

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Bert Magstadt Watertown Municipal Utilities
SSOQ2 Government-Industry Taskforce

Endorsement: Midwest Energy Association (MEA), training, testing, evaluation and record keeping materials are compatible with the IAMU OQ plan.

NATURAL GAS OPERATOR QUALIFICATION PROGRAM

1.1 PURPOSE. This program is intended to meet the requirements, effective April 27, 2001, of the Office of Pipeline Safety, U.S. Department of Transportation, for natural gas operators (Reprinted below). By following the provisions in this written program, individuals will be able to meet the October 28, 2002 requirements as specified in 192.809.

Any persons performing covered tasks after October 28, 2002 shall be qualified in accordance with this program. Work performance history review is not anticipated to be used as a qualification criteria, except it may be used for outside contractors performing certain covered tasks, that require separate documentation, as required by the O&M manual, for example; Leak surveys, cathodic protection, regulator inspection.

Work performance history may not be used as the sole evaluation after October 28, 2002. (Protocol 4.01 §192.809/195.509)

QUALIFICATION OF PIPELINE PERSONNEL

49CFR PART 192 Subpart N

192.801 SCOPE.

- (a) This subpart prescribes the minimum requirements for operator qualification of individuals performing covered tasks on a pipeline facility.
- (b) For the purpose of this subpart, a covered task is an activity, identified by the operator, that:
 - 1. Is performed on a pipeline facility;
 - 2. Is an operations or maintenance task;
 - 3. Is performed as a requirement of this part; and
 - 4. Affects the operation or the integrity of the pipeline.

192.803 DEFINITIONS.

Abnormal operating condition (AOC) means a condition identified by the operator that may indicate a malfunction of a component or deviation from normal operations that may:

- (a) Indicate a condition exceeding design limits
- (b) Result in a hazard(s) to persons, property, or the environment.

Evaluation means a process, established and documented by the operator, to determine an individual's ability to perform a covered task by any of the following:

- (a) Written examination
- (b) Oral examination
- (c) Work performance history review
- (d) Observation during
- (e) Performance on the job
- (f) On the job training
- (g) Simulations
- (h) Other forms of assessment.

Qualified means that an individual has been evaluated and can:

- (a) Perform assigned covered tasks
- (b) Recognize and react to abnormal operating conditions.

192.805 QUALIFICATION.

Each operator shall have and follow a written qualification program. The program shall include provisions to:

- (a) Identify covered tasks
- (b) Ensure through evaluation that individuals performing covered tasks are qualified
- (c) Allow individuals that are not qualified pursuant to this subpart to perform a covered task if directed and observed by an individual that is qualified
- (d) Evaluate an individual if the operator has reason to believe that the individual's performance of a covered task contributed to an incident as defined in part 191
- (e) Evaluate an individual if the operator has reason to believe that the individual is no longer qualified to perform a covered task
- (f) Communicate changes that affect covered tasks to individuals performing those tasks
- (g) Identify those covered tasks and the intervals at which evaluation of the individual's qualifications is needed.

192.807 RECORD KEEPING.

Each operator shall maintain records that demonstrate compliance with this subpart.

- (a) Qualification records shall include:
 - 1) Identification of qualified individual(s);
 - 2) Identification of the covered tasks the individual is qualified to perform;
 - 3) Date(s) of current qualification; and
 - 4) Qualification method(s).
- (b) Records supporting an individual's current qualification shall be maintained while the individual is performing the covered task. Records of prior qualification and records of individuals no longer performing covered tasks shall be retained for a period of five years.

192.809 GENERAL.

Operators must have a written qualification program by April 27, 2001. Operators must complete the qualification of individuals performing covered tasks by October 28, 2002. Work performance history review may be used as a sole evaluation method for individuals who were performing a covered task prior to August 27, 1999.

After October 28, 2002, work performance history may not be used as a sole evaluation method.

1.2 COVERED TASKS, COMPETENCIES AND SKILLS.

This qualification program is divided into specific covered tasks. There are several required competencies and skills for each covered task. Any person performing a covered task must be qualified in the competencies and skills required for that task. In addition, all affected persons, regardless of their performance of specific covered tasks, shall be required to demonstrate knowledge of the Fundamentals of Natural Gas.

(Protocol 2.01 §192.805/195.505)

METHOD USED FOR DETERMINING COVERED TASK LIST

1.3 OUTSIDE CONTRACTORS.

Outside contractors performing a covered task shall qualify by one of the following methods:

1. May qualify through this program.
2. Shall perform the covered tasks under the direct supervision of a qualified individual.
3. Shall submit proof, prior to performing the task acceptable to the operator demonstrating acceptable qualification for the covered tasks by obtaining copies, as described in Section 1.12 of this Division, of the contractor's evaluations and ensure they address the same knowledge' skills' abilities and AOC's as your evaluations for the same tasks.

Outside contractors qualifications have to include the requirements as described in Section 1.16 of this Division.

The Plan Administrator will make sure the evaluations are documented e.g. test questions are written and observation evaluations include checklists indicating what is observed. List these evaluations in this OQ Program as evaluations you accept for these tasks.

(Protocols 1.02, 3.01, 4.02, 7.01, §§ 192.803/195.503, 192.805/195.505, 192.807/195.507) ~~by obtaining copies of the contractor's evaluations and ensure they address the same knowledge, skills, abilities and AOC's as your evaluations for the same tasks. Make sure the evaluations are documented, e.g. test questions are written and observation evaluations include checklists indicating what is observed. You must list these evaluations in your OQ Plan as evaluations you accept for these tasks.~~

(Example) Qualified under Southern Cross leak detection school.

Copies of the topics covered are on file.

1.4 QUALIFICATION BY WRITTEN / ORAL AND/OR HANDS-ON EVALUATION.

A written/oral and/or hands-on evaluation is required in each competency or skill. One hundred percent of all specified critical questions and not less than seventy percent of all other questions must be answered correctly to pass the evaluation (this percentage may vary, check with your state pipeline safety regulators.) All of the required competencies or skills must be passed or re-training and successful evaluation must be completed on those that are not passed.

1.5 QUALIFICATION BY PRE-TEST.

A general pre-test may be offered to establish specific knowledge areas. If the test is passed in all areas, at least seventy percent in each competency (this percentage may vary, check with your state pipeline safety regulators), then demonstration of proficiency through hands-on exercises may be used to establish qualification.

1.6 RE-QUALIFICATION.

Examinations for re-qualification must be passed and documented within the time frames specified in Division 3.

1.7 QUALIFICATION BY PERFORMANCE.

QUALIFICATION BY WORK PERFORMANCE IS DEFINED AS PERFORMING A COVERED TASK IN A SAFE AND EFFECTIVE MANNER FOR A PERIOD OF AT LEAST FIVE YEARS. IN OTHER WORDS, THERE HAVE BEEN NO REPORTABLE GAS-RELATED ACCIDENTS OR INCIDENTS, (SEE DEFINITION, 1.9 OF THIS DIVISION), OR AOCs AS A DIRECT RESULT OF THE INDIVIDUAL'S WORK PERFORMANCE.

In the event that an employee is not qualified to perform a certain task, that person may become qualified by successfully performing the task under the direct supervision of an individual, selected by the Plan Administrator, whom is also qualified. The successful performance must be documented on the appropriate evaluation form (e.g. as contained in Division 5 of this program.)

Work performance history may not be used as sole evaluation method after October 28, 2002.

(Protocol 4.01, §§ 192.803/195.503, 192.805/195.505)

1.8 PERFORMING COVERED TASK UNDER DIRECT OBSERVATION OF QUALIFIED PERSON.

IN THE EVENT THAT AN EMPLOYEE IS NOT QUALIFIED TO PERFORM A CERTAIN COVERED TASK, THAT PERSON MAY PERFORM THE COVERED TASK IF UNDER DIRECT OBSERVATION OF A PERSON THAT IS QUALIFIED.

DIRECT OBSERVATION MEANS, THE OBSERVER MUST BE IN CLOSE ENOUGH PROXIMITY, IN THE IMMEDIATE AREA, TO BE ABLE TO RECOGNIZE, AND REACT TO AN ACTION THAT MAY CREATE AN ABNORMAL OPERATING CONDITION OR BY NOT FOLLOWING PROPER PRACTICES, AND TAKE IMMEDIATE ACTION, TO PREVENT IT FROM OCCURRING.

WHEN PERFORMING DIRECT OBSERVATION THE OBSERVER MUST APPROPRIATELY DOCUMENT THE OBSERVATION, FORM "DIRECT OBSERVATION OF UNQUALIFIED PERSON PERFORMING

COVERED TASK UNDER DIRECT SUPERVISION OF QUALIFIED INDIVIDUAL” IN DIVISION 5 CAN BE USED TO DOCUMENT THE OBSERVATION.

ON-THE-JOB TRAINING MAY NOT BE USED FOR FUSION, WELDING, AND TAPPING. QUALIFICATION FOR THESE COVERED TASKS MUST BE COMPLETED PRIOR TO PERFORMANCE ON A SYSTEM. (PROTOCOL 3.02, § 192.805/195.505)

1.9 RE-EVALUATION FOR CAUSE.

Re-evaluation of a person’s qualification must be undertaken when his/her performance has created an unsafe environment, been the direct cause of personal injury, or if the Plan Administrator has reason to believe the person’s performance of a covered task contributed to an *incident* defined in Part 191.

Incident means any of the following events:

1. An event that involves a release of gas from a pipeline or liquefied natural gas (LNG) or gas from an LNG facility and (i) A death, or personal injury necessitating in-patient hospitalization; or (ii) Estimated property damage, including cost of gas lost, of the operator or others, or both, of \$50,000 or more.¹
2. An event that results in an emergency shutdown of an LNG facility.
3. An event that is significant, in the judgment of the operator, even though it did not meet the criteria of paragraphs (1) or (2).

If at anytime the Plan Administrator has reason to believe that an individual is no longer qualified to perform a covered task, then that individual will have to be re-qualified by hands-on and written and/or oral examination (to same criteria as initial qualifications.) Reasons an individual may no longer be qualified may include: injury or physical limitation, procedures seldom or rarely performed, observation of an error or incorrect procedure, an near-miss incident, evidence of an error or incorrect procedure, or any other evidence the individual may need to be re-evaluated and re-qualified.

(Protocols 1.04, 4.02, 5.01, §§192.803/195.503, 192.805/195.505)

Re-Qualification will be determined by (the department head, the crew leader, or by a third party observer) as approved by the Plan Administrator.

¹ Incidents with lower property damage may need to be reported to state regulators. For example, Iowa defines a reportable incident as one with \$15,000 of losses or more. These lower-threshold incidents require re-evaluation of qualification.

1.10 NOTICE OF CHANGES.

Plan Administrator will communicate i.e. meeting, e-mail, with all affected individuals and contractors to make them aware of any material change, or changes made on the system that require a change of procedures, including changes in the O&M and/or the Emergency Procedures. This meeting will occur as soon after such changes are made as practical, and documented as to the context and attendees using Form “Notice of Change” in Division 5. This may include qualification and re-qualification procedures, equipment change and upgrades, new material specifications, O&M activity and new tasks and evaluations.

(Protocol 2.01, 8.01, §§ 192.801/195.501, 192.805/195.505)

1.11 TRAINING.

The above requirements are accomplished through an on-going training program. This program includes workshops, classroom activities, and various other training methods that are designed to address the different covered tasks performed by each individual.

All training and evaluation shall be conducted by or be in accordance with this training and qualification program.

All hands-on activities will be conducted at the operator’s gas facility, a gas facility of similar design, the IAMU/MMUA training facilities, or at a workshop designated for the specific competencies and skills identified as covered tasks.

Any new or amended tasks addressed in Section 1.10 shall have appropriate training materials outlined in Division 7.

Retraining if qualifications are questioned will be conducted as per 1.9 of this Division “Reevaluation For Cause.”

(Protocol 1.04, 4.02, §§ 192.803/195.503, 192.805/195.505)

1.12 PROGRAM RECORDKEEPING.

Section 4 of this manual contains an Individual Qualification Summary (4a) as well as a Group Qualification Summary (4b). These forms will identify each of the qualified individuals, the covered tasks that each individual is qualified to perform, the dates of current qualification for each task, and the qualification methods. Form 4a is to be maintained by and is the property of the individual. Form 4b is to be maintained by the facility administrator and is the property of the gas facility. If forms 4a and 4b are not used, other appropriate recordkeeping methods may also be acceptable, such as, computer databases and workshop documentation, etc.

Records of individual qualification method, completion of workshop evaluation training records that support qualified person qualifications shall be maintained while the individual is performing the covered task. Prior qualifications and of persons that are no longer performing covered tasks, shall be retained for the time period of five years after the qualification expires.

MMUA, and IAMU maintain an off-site back up of documentation for the OQ records.

(Protocols 3.01, 7.01, §192.807/195.507)

1.13 NEW CONSTRUCTION.

Will be regarded as an O&M activity i.e. pipe replacement, main additions regulator station upgrades

1.14 MUTUAL AID.

Both covered by this program, or onsite training will be given on assigned covered tasks, prior to performing these tasks, and individuals will be listed.

Individuals from other entities performing covered tasks on behalf of the operator must be evaluated and qualified consistent with the operator's qualification program requirements prior to being allowed to perform covered tasks on the operator's system.

(Protocols 1.03, 1.04, §192.803/195.503)

List task that are required for Mutual Aid responders and list tasks below:

1.15 QUALIFICATION METHODS.

Qualification methods and time frames required were established by a steering committee of system operators and regulatory personnel located in Iowa, and Minnesota. Due to the complexities and uniqueness of the tasks, some are knowledge based, and others are accomplished by performance.

Time frames used were determined in part by the frequencies the tasks are performed, the extent of AOC's that may be involved, and the difficulties in performing the tasks. The covered task list was partially derived from MEA training materials and IAMU and MMUA steering committees.

(Protocols 1.01, 2.01, 5.02, §§ 192.801/195.501, 192.805/195.505)

1.16 ABNORMAL OPERATING CONDITIONS

AOC's are included in the specific tasks, and how to recognize and respond to them are included in the qualification method as outlined in Division 8.

Other training materials/method/school/workshops etc., need to ensure they cover the AOC's required for the task(s) and then listed in Division 7.

(Protocol 4.02, §192.803/195.503)

1.17 PROGRAM PERFORMANCE, EFFECTIVENESS AND IMPROVEMENT

Plan Administrator is to evaluate the program as to performance, effectiveness and improvement.

Example: 1. Changing and or upgrading equipment procedures i.e. Notice of Change form in Division 5.

2. Recognize the need of re-qualification of employees.

Request for changes and/or additions to this plan should be documented by using the "Feedback Form" in Division 5. Copy to be filed at utility/company and original mailed to IAMU.

(Protocol 6.01, §192.805/195.505)

PROCEDURES WITH COVERED TASKS

The following activities would be considered “tasks” under 49 CFR 192. The competencies and/or skills listed as sections or subsections under each task are those identified in the operator qualification requirements of Division 3 of this program. Competency in fundamentals of natural gas is required for all covered tasks. (Protocols 1.01, 2.01, §192.805/195.505)

P-1 OPERATE VALVES, REGULATORS, AND RELIEF VALVES LOCATED AT TOWN BORDER STATION AND ALL DISTRICT REGULATOR STATIONS

Tasks:

- a. Operating valves (open/close)
- b. Changing pressure settings on regulators and relief valves

~~Required Competencies and Skills:~~

1 (all)	Fundamentals of natural gas
12.1	Operating valves (including emergency valves), regulators, and relief valves
12.2	Inspecting and maintaining pressure regulating and limiting stations

P-2 MAINTAIN REGULATOR STATIONS

Tasks:

- a. Conducting shut down/Start up procedures
- b. Operating by-pass
- c. Performing lock-up
- d. Stroking to full open
- e. Adjusting to desired operating pressure
- f. Inspecting gauges and/or chart recorders
- g. Inspecting filters/valves/strainers
- h. Inspecting for atmospheric corrosion
- i. Inspecting for protection against third-party interference
- j. Inspecting relief valve for damage
- k. Checking relief set pressure
- l. Checking capacity
- m. Inspection of regulator relief valve, orifices, and seats

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
12.2	Inspecting and maintaining pressure regulating and limiting stations

P-3 CONDUCT LEAK SURVEYS

Tasks:

- a. Operating flame ionization unit
- b. Operating combustible gas indicator (and/or any other leak detection equipment used on the facility)
- c. Operating electronic gas detector
- d. Knowing the different leak classifications (distinguish the difference)
- e. Conducting bar-hole leak investigation

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
5.1	Leak Classification
5.2	Procedures for Leak Surveys and Patrols
5.3	Combustible gas indicators
5.4	Electronic gas detectors
5.5	Flame ionization
5.6	Bar Hole Testing and Purging

P-4 OPERATE LINE LOCATOR

Tasks:

- a. Locating inductively
- b. Locating conductively
- c. Proper placement of ground
- d. Proper marking of facilities

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
3.1, 3.2, and/or 3.3, and 3.5	Operating line locator

P-5 INSTALL MAINS

Tasks:

- a. Mapping
- b. Record keeping
- c. Selecting proper welding and/or fusion procedures
- d. Installing tracer wire for plastic pipe
- e. Installing valves and fittings
- f. Conducting pressure tests
- g. Purging
- h. Plastic pipe repair
- i.

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
2.1	Documenting materials and installation records

2.2	Documenting maximum allowable operating pressure (MAOP)
2.4	Investigating and documenting line failure
3.5	System mapping
4 (all)	The field safety competencies and skills required for this task depend on the type and size of materials, method of construction, and choice of equipment.
7 (all)	The field safety competencies and skills required for this task depend on the type and size of materials, method of construction, and choice of equipment.
8 (all)	The construction - heavy equipment competencies and skills required for this task depend on the type and size of materials, method of construction, and choice of equipment.

P-6 INSTALL SERVICE LINES / REINSTATING SERVICE LINES

Tasks:

- a. Mapping
- b. Record keeping
- c. Selecting proper welding and/or fusion procedures
- d. Installing tracer wire for plastic pipe
- e. Installing valves, pipe, including excess flow valves, and fittings
- f. Pressure testing
- g. Purging
- h. Selecting proper riser and meter set
- i. Plastic pipe repair

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
2.1	Documenting materials and installation records
2.2	Documenting maximum allowable operating pressure (MAOP)
2.4	Investigating and documenting line failure
3.3	System mapping
4 (all)	The field safety competencies and skills required for this task depend on the type and size of materials, method of construction, and choice of equipment.
7 (all)	The field safety competencies and skills required for this task depend on the type and size of materials, method of construction, and choice of equipment.
8 (all)	The construction - heavy equipment competencies and skills required for this task depend on the type and size of materials, method of construction, and choice of equipment.

P-7 CONDUCT LEAK INVESTIGATIONS

Tasks:

Procedures specified in Operating and Maintenance Plan

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
2.4	Investigating and documenting line failure
2.5	Accident reporting
5 (all)	Fundamentals of gas leaks and skill in operating appropriate leak detection equipment.
6.1	Carbon monoxide (CO) testing
6.2	Investigating leaks (indoor and outdoor)

P-8 OPERATE ODORANT LEVEL TESTING EQUIPMENT

Tasks:

Selecting appropriate location

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
11.3	Testing odorant level

P-9 PERFORM LEAK SURVEYS AND PIPELINE PATROLS

Tasks:

- a. Identifying building or construction near line
- b. Identifying soil subsidence
- c. Identifying abnormalities in vegetation growth

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
4.5	Soil Subsidence
5.2	Procedures for Leak Surveys and Patrols

P-10 FILL ODORANT SYSTEM

Tasks:

- a. Closing valves to isolate system
- b. De-pressurizing tank
- c. Filling according to procedures (differential type or injector)
- d. Recording amount of odorant used
- e. Closing valves to atmosphere
- f. Opening proper valves to restore to use

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
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11.1 or 11.2	Operating and maintaining differential odorant system Operating and maintaining injection odorant system
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P-11 OPERATE BACKHOE

Tasks:

- a. Loading and unloading
- b. Conducting pre-operating inspection
- c. Operating

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
8.1	Operating backhoe

P-12 OPERATE TRENCHER

Tasks:

- a. Loading and unloading
- b. Conducting pre-operating inspection
- c. Operating

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
8.3	Operating trencher

P-13 JOIN PLASTIC PIPE BY FUSION

(By Approved Procedures Only)Tasks:

- a. Performing butt fusion
- b. Performing socket fusion
- c. Performing saddle fusion
- d. Performing electro fusion

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
7.11	Plastic pipe joining (fusion)

~~**P-14 JOIN PLASTIC PIPE BY MECHANICAL COUPLING (By Approved Procedures Only)**~~

~~Tasks:~~

- ~~a. Installing stab fittings~~
- ~~b. Installing compression fittings~~
- ~~c. Installing boltless couplings~~

~~Required Competencies and Skills:~~

1 (all)	Fundamentals of natural gas
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7.12	Plastic pipe joining (mechanical couplings)
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~~P-15 VISUALLY INSPECT FUSION JOINTS (By Approved Procedures Only)~~

~~Tasks:~~

~~Following approved fusion procedures~~

~~Required Competencies and Skills:~~

1 (all)	Fundamentals of natural gas
7.11	Plastic pipe joining (fusion)

P-16 JOIN STEEL PIPE BY WELDING

Tasks:

Following approved welding procedures

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
7.14	Steel pipe joining by welding
7 (all)	The field safety competencies and skills required for this task depend on the type and size of materials, method of construction, and choice of equipment.

P-17 PROTECT WELDING FROM WEATHER

Tasks:

Following approved welding procedures

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
7.14	Steel pipe joining by welding

P-18 VISUALLY INSPECT COMPLETED WELD

Tasks:

Following approved welding procedures

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
7.14	Steel pipe joining by welding

P-19 TEST WELDERS

Tasks:

Following approved welding procedures

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
7.14	Steel pipe joining by welding

P-20 PREPARE WELD SURFACES (By Approved Welding Procedures Only)

Tasks:

Following approved welding procedures

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
7.14	Steel pipe joining by welding

P-21 JOIN STEEL PIPE BY MECHANICAL COUPLING (By Approved Procedures Only)

Tasks:

- a. Installing bolted or boltless insulated couplings
- b. Installing bolted or boltless non-insulating couplings

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
7.15	Steel pipe joining by mechanical couplings

P-22 INSPECT FOR INTERNAL CORROSION

TASKS:

- a. Inspecting tapping coupons
- b. Inspecting open ends

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
10.2	Internal corrosion

P-23 INSPECT FOR EXTERNAL CORROSION

Tasks:

- a. Examining exposed pipelines
- b. Examining coating for damage
- c. Examining for pitting or scaling

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
10.3	External corrosion

P-24 INSPECT FOR ATMOSPHERIC CORROSION

Tasks:

- a. Inspecting paint coverage
- b. Inspecting for physical damage

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
10.4	Atmospheric corrosion

P-25 DETERMINE TYPE OF CORROSION (Localized Or Generalized)

Tasks:

- a. Inspecting for pitting
- b. Inspecting for flaking or scaling

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
10.1	Cathodic protection
10.5	Coatings
10.6	Holiday detection (coating inspection)
10.7	Painting and jacketing above ground facilities

P-26 APPLY COATINGS

Tasks:

- a. Applying hot field coating
- b. Applying cold field coatings
- c. Applying hot melt compound
- d. Applying petrolatum tape
- e. Applying mastic compounds
- f. Primers
- g. Paints

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
10.5	Coatings
10.7	Painting and jacketing above ground facilities

P-27 CONDUCT HOLIDAY DETECTION (Coating Inspection)

Tasks:

- a. Visually inspecting
- b. Using fault detection equipment

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
10.6	Holiday detection (coating inspection)

P-28 TAKE PIPE-TO-SOIL READINGS

Tasks:

- a. Properly placing half-cell
- b. Using voltmeter

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
10.1	Cathodic protection

P-29 INSPECT FOR DETERIORATION AND DAMAGE

Tasks:

- a. Inspecting new pipe and fittings
- b. Inspecting coatings
- c. Inspecting for dents
- d. Identifying stress points

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
7.13	Recognition of defective material
7.16	Damage prevention
10 (all)	Corrosion control

P-30 INSPECT DITCHES AND BACKFILLS

Tasks:

- a. Looking for rocks
- b. Looking for sharp objects
- c. Inspecting trench bottoms

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
7.17	Application of padding and shielding

P-31 APPLY PADDING AND SHIELDING

Tasks:

~~Remediating risks associated with rocks, sharp objects, and rough trench bottoms~~

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
7.17	Application of padding and shielding

P-32 PAINT AND JACKET ABOVE GROUND FACILITIES

Tasks:

- a. Protecting dielectric fittings
- b. Protecting identification tags
- c. Protecting regulator vents
- d. Applying proper protective coating

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
10.7	Painting and jacketing above ground facilities

P-33 INSTALL CATHODIC PROTECTION (Sacrificial Anode System)

Tasks:

- a. Attaching galvanic anode by thermite weld
- b. Attaching galvanic anode by bolt-on-clamps
- c. Attaching drive-in galvanic anode

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
10.8	Installation of cathodic protection (sacrificial anode system)

P-34 INSTALL IMPRESSED CURRENT SYSTEM

Tasks:

- a. Installing rectifier
- b. Installing anode bed
- c. Connecting positive and negative leads to pipe and rectifier

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
10.9	Installation of impressed current system

P-35 VISUALLY INSPECT CATHODIC PROTECTION SYSTEM

Tasks:

- a. Looking at test stations for physical damage
- b. Looking at dielectric fittings
- c. Looking for broken wires
- d. Looking at rectifier units for damage

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
10.10	Inspection, monitoring cathodic protection system

P-36 MONITOR CATHODIC PROTECTION SYSTEM

Tasks:

- a. Recording pipe-to-soil readings
- b. Testing for AC Drain
- c. Inspecting dielectric spacers
- d. Inspecting DC Interference bond
- e. Testing soil resistivity
- f. Establishing current requirements
- g. Inspecting reverse current switch diodes
- h. Recording IR Drops
- i. Testing casings – (100 mv)

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
10.10	Inspection, monitoring cathodic protection system

P-37 MAINTAINING CATHODIC PROTECTION SYSTEM

Tasks:

Remediating abnormalities found through visual inspection and monitoring

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
10.10	Inspection, monitoring cathodic protection

P-38 ELECTRICALLY ISOLATE SYSTEM

Tasks:

- a. Installing or maintaining flange gaskets
- b. Installing or maintaining weld-in insulating fittings
- c. Installing or maintaining insulated meter spuds
- d. Installing or maintaining insulated gas cocks
- e. Installing or maintaining cathodic protection system isolation

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
10.8	Installation of cathodic protection (sacrificial anode system)
10.9	Installation of impressed current system
10.10	Inspection, monitoring cathodic protection system

P-39 INSPECT FOR INTERFERENCE OR STRAY CURRENTS

Tasks:

- a. Using current interrupter
- b. Using power supply

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
10.10	Inspection, monitoring cathodic protection system

P-40 TAPPING AND STOPPING STEEL PIPE

Tasks:

- a. Installing tapping tees
- b. Installing bottom-out fittings
- c. Installing line stoppers
- d. Installing bag stoppers
- e. Installing expansion plugs

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
7.20 and/or 7.21	Tapping/Stopping steel pipe 1” through 4” Tapping/Stopping steel pipe 6” through 8”

P-41 TAPPING AND STOPPING POLYETHYLENE PIPE

Tasks:

- a. Squeezing off
- b. Performing hot-tap
- c. Grounding

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
7.22	Tapping and stopping polyethylene pipe

P-42 INSPECT VAULT

Tasks:

- a. Inspect physical integrity of vault
- b. Inspecting integrity of steps
- c. Inspecting for excess moisture and proper drainage
- d. Inspecting ventilation equipment (vaults exceeding 200cf)

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
4.8	Confined Space Entry (Vaults, etc.)

P-43 ABANDON VAULTS

Tasks:

- a. Installing line stops
- b. Installing temporary bypass
- c. Removing vault
- d. Maintaining job site protection

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
4.9	Job site protection
4.11	Pressure testing
4.13	Excavation safety
4.8, 7.23 and 7.20, or 7.21, or 7.22	Confined space entry Vault abandonment Tapping/Stopping steel pipe 1" through 4" Tapping/Stopping steel pipe 6" through 8" Tapping and stopping polyethylene pipe
7.24	Vault abandonment

P-44 MAINTAIN KEY VALVES

Tasks:

- a. Positioning valve key on valve
- b. Closing and opening valve
- c. Lubricating valve (determine correct amount required)
- d. Valve mapping
- e. Valve location
- f. Verifying area of control (mapping)
- g. Identifying valve material
- h. Identifying valve size
- i. Maintaining accessibility of valves

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
12.1	Operating valves (including key valves), regulators, and relief valves
12.3	Inspecting and maintaining key valves

P-45 INSPECT CUSTOMER METER SETS

Tasks:

- a. Inspecting for proper location
- b. Inspecting stop cock installation for easy access
- c. Determining whether meter set insulated

- d. Inspecting regulator installation for vent location/direction
- e. Inspecting meter installation for flow direction
- f. Checking for riser height and if meter set is level
- g. Checking pressure and adjust (customer side)
- h. Checking for lock-up
- i. Testing for no-flow
- j. Checking tracer wire, if poly pipe is used

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
6.7	Pressure Checks to Establish Gas Service
6.8	Establishing and Disconnecting Gas
10.4	Atmospheric corrosion

P-46 OPERATING PEAK SHAVING PLANT (Propane/Air Mixture/Injection)

Tasks:

- a. Operating valves
- b. Operating electric control panel
- c. Adjusting temperature on vaporizer
- d. Adjust injection pressure (Foxboro controller)
- e. Operating compressor
- f. Operating the specific gravity controller (Usually Ranarex controller)
- g. Operate Bunson burner (If equipped)
- h. Inspect gauges, charts for stabilization

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
13.1	Pre-start-up procedures
13.2	Start-up/operating procedures/shut down accordance with operators manual for specific equipment used

P-47 SYSTEM UPGRADING (Increasing Pressure)

- a. ~~Inspecting meter sets (regulators, orifice size, internal relief)~~
- b. Inspecting regulator/relief capacities
- c. Leak survey
- d. Bar hole testing

Required Competencies and Skills:

1 (all)	Fundamentals of natural gas
2.3/12.4	System upgrading
2.2	Documenting MAOP
5.1	Leak classification
5.2	Procedures for leak surveys and patrols

5.3	Combustible gas indicators
5.4	Electronic gas detectors
5.5	Flame ionization
5.6	Bar hole testing and purging

REQUIRED COMPETENCIES AND SKILLS

(Protocols 1.05, 2.02, 4.01, 5.02 §§192.803/195.503, 192.805/195.505, 192.809/195.509)

	Competencies and Skills	Original Qualification Method	Re-Qualif. Method	Re-Qualif. Period	Suggested Training Reference ¹
Sec. 1	Fundamentals of Natural Gas				
1.1	Characteristics and hazards of natural gas	Written evaluation	Written evaluation	Prerequisite, then 60 months, not to exceed 60 months	Gas Fundamentals Training, MEA-101
1.2	Potential ignition sources: indoor and outdoor	Written evaluation	Written evaluation	Prerequisite, then 60 months, not to exceed 60 months	Gas Fundamentals Training, MEA-102
1.3	Recognizing emergency conditions	Written evaluation	Written evaluation	Prerequisite, then 60 months, not to exceed 60 months	Gas Fundamentals Training, MEA-103
1.4	Recognizing and reporting natural gas leaks	Written evaluation	Written evaluation	Prerequisite, then 60 months, not to exceed 60 months	Gas Fundamentals Training, MEA-104
Sec. 2	Record keeping				
2.1	Documenting materials and installation records	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's workshop, O&M Manual MEA-402
2.2	Documenting maximum allowable operating pressure (MAOP)	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, O&M Manual MEA-421
2.3	System up-rating	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, MEA-521
2.4	Investigating and documenting line failure	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-462
2.5	Accident reporting	Written evaluation	Written evaluation	60 months, not to exceed 60 months	Operator's Workshop, O&M Manual, MEA-103

Sec. 3	Marking and Mapping Facilities				
3.1	Locating facilities using the conductive method	Written and hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, Manufacturer's Procedures, MEA-402
3.2	Locating facilities using the inductive method	Written and hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, Manufacturer's Procedures, MEA-402
3.3	Locating facilities using the inductive method (two persons)	Written and hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, Manufacturer's Procedures, MEA-402
3.4	Determining depth through triangulation	Written and hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, Manufacturer's Procedures, MEA-402
3.5	System mapping	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop MEA-402
Sec. 4	Fundamentals of Field Safety in Construction, Operation, and Maintenance				
4.1	Personal protective equipment	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	OSHA compliance manual and training, MEA-111
4.2	Power tool safety	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	OSHA compliance manual and training, MEA-121
4.3	Proper firefighting techniques	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Emergency Procedures Training, MEA-122
4.4	Controlling the accidental release of gas	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Emergency Procedures Training, MEA-131
4.5	Soil subsidence	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	OSHA compliance manual and training, MEA-201
4.6	Atmospheric corrosion	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-202
4.7	Recognizing unsafe meter sets	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	MEA-211

4.8	Confined space entry (vaults, etc.)	Written evaluation	Written or hands-on eval.	Initial, then 12 months, not to exceed 15 months	OSHA compliance manual and training, MEA-501
4.9	Job site protection	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Compliance manual and training, MEA- MEA-401
4.10	Purging safety	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-422
4.11	Pressure testing steel and plastic pipeline	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-421
4.12	Abandoning facilities	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-471
4.13	Excavation safety	Written evaluation	Written or hands-on eval.	Initial, then 12 months, not to exceed 15 months	OSHA compliance manual and training, MEA-404
Sec. 5	Fundamentals of Gas Leaks - Survey and Response				
5.1	Leak classification	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Emergency Procedures Training, Gas Fundamentals Training, MEA-221
5.2	Procedures for leak surveys and patrols	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, MEA-271
5.3	Combustible gas indicators	Written or Hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months (or new equip.)	Operator's Workshop, Manufacturer's Procedures MEA-231
5.4	Electronic gas detectors	Written or Hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months (or new equip.)	Operator's Workshop, Manufacturer's Procedures, MEA-231
5.5	Flame ionization	Written or Hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months (or new equip.)	Operator's Workshop, Manufacturer's Procedures MEA-232
5.6	Bar hole testing and purging	Written or Hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, MEA-261
Sec. 6	Fundamentals of				

	Customer Service				
6.1	Carbon monoxide (CO) testing	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, MEA-241
6.2	Investigating leaks	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, MEA-272
6.3	Combustion and ventilation air requirements	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, MEA-301
6.4	Pilot light operation	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, MEA-311, 324
6.5	Gas-air adjustment	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, MEA-312
6.6	Appliance venting	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, MEA-313
6.7	Pressure checks to establish gas service	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, MEA-321
6.8	Establishing and disconnecting gas	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, MEA-322
Sec. 7	Fundamentals of Construction				
7.1	Pressure testing steel and plastic pipeline	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-421
7.2	Procedures for abandoning facilities	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-471
7.3	Cathodic protection (general)	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-431
7.4	Constructing facilities across streets, railroads, and waterways	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-453
7.5	Operating thermite welder	Written and hands-on evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, Manufacturer's Procedures, MEA-431

7.6	Installing tracer wire	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, DOT Small Gas Operators Manual MEA-451, 452
7.7	Installing valves	Written Evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-451
7.8	Steel and cast iron repair fittings	Written and hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, Manufacturer's Procedures, MEA-461
7.9	Maintaining steel and cast iron mains	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, MEA-462
7.10	Reinforcing steel and plastic mains	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Fusion Workshop, MEA-463
7.11	Plastic pipe joining (fusion)	Hands-on evaluation	Hands-on evaluation	12 months, not to exceed 15 months	Fusion Workshop, MEA-411
7.12	Plastic pipe joining (mechanical couplings)	Hands-on evaluation	Hands-on evaluation	36 months, not to exceed 39 months	Operator's Workshop, MEA-463
7.13	Recognition of defective material	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-411, 412, 421
7.14	Steel pipe joining by welding	Per approved welding procedures	Per approved welding procedures	12 months, not to exceed 12 months	Pipeline Welding Workshop, Qualified Welding Procedures
7.15	Steel pipe joining by mechanical couplings	Written and hands-on evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, Operator's Workshop, MEA-412
7.16	Damage prevention	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-462
7.17	Application of padding and shielding	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-453
7.18	Replacing emergency valves	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, MEA-441, 511
7.19	Installing meter sets	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, MEA-211, 322, 452
7.20	Tapping and stopping steel pipe 1" through 4"	Hands-on evaluation	Hands-on evaluation	36 months, not to exceed 39 months	Operator's Workshop, MEA-441

7.21	Tapping and stopping steel pipe 6" through 8"	Hands-on evaluation	Hands-on evaluation	36 months, not to exceed 39 months	Operator's Workshop, Manufacturer's Procedures
7.22	Tapping and stopping polyethylene pipe	Hands-on evaluation	Hands-on evaluation	60 months, not to exceed 60 months	Operator's Workshop, MEA-451, 452
7.23	Vault abandonment	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-471, 501
Sec. 8	Fundamentals of Construction – Heavy Equipment Operation				
8.1	Operating backhoe	Written and hands-on evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-403
8.2	Operating trencher	Hands-on evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, Manufacturer's Procedures, MEA-403
8.3	Operating boring equipment	Hands-on evaluation	Hands-on evaluation	36 months, not to exceed 39 months	Operator's Workshop, Manufacturer's Procedures
8.4	Ditch and backfill inspection	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Operator's Workshop, MEA-404
Sec. 9	Fundamentals of Measurement and Control				
9.1	Metering	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Metering Workshop
9.2	Odorization measurement and control	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, MEA-251
Sec. 10	Corrosion Control				
10.1	Cathodic protection	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Corrosion control workshop, MEA-431
10.2	Internal corrosion	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Corrosion control workshop, MEA-431
10.3	External corrosion	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Corrosion control workshop, MEA-431

10.4	Atmospheric corrosion	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Corrosion control workshop, MEA-202
10.5	Coatings	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Corrosion control workshop, MEA-431
10.6	Holiday detection (coating inspection)	Written and hands-on evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Corrosion control workshop, MEA-431
10.7	Painting and jacketing above ground facilities	Hands-on evaluation	Hands-on evaluation	36 months, not to exceed 39 months	Corrosion control workshop, MEA-202
10.8	Installation of cathodic protection (sacrificial anode system)	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Corrosion control workshop, MEA-431
10.9	Installation of impressed current system	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Corrosion control workshop, MEA-431
10.10	Inspection, monitoring cathodic protection system	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months	Corrosion control workshop, MEA-431
Sec. 11	Odorization				
11.1	Operating and maintaining differential odorant system	Written and hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, O&M Manual, MEA-251
11.2	Operating and maintaining injection odorant system	Written and hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, O&M Manual, MEA-251
11.3	Testing odorant level	Written and hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, O&M Manual, MEA-251
Sec. 12	Other Operating and Maintenance Skills				
12.1	Operating valves (including emergency valves), regulators, and relief valves	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, O&M Manual, MEA-244, 511, 512
12.2	Inspecting pressure regulating and limiting stations	Written or hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, O&M Manual, MEA-512
12.3	Inspecting and maintaining key valves	Written or hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, O&M Manual, MEA-511

12.4	System uprating	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months	Operator's Workshop, O&M Manual, MEA-521
Sec. 13	Operating Peak Shaving Plant (Propane/air mixture/injection)				
13.1	Pre-start-up procedures	Hands-on evaluation	Hands-on evaluation	Initial, then 12 months, not to exceed 15 months	O&M Manual, Emergency shut down procedures
13.2	Start-up/operating procedures/shut down in accordance with operators manual for specific equipment	Hands-on evaluation	Hands-on evaluation	Initial, then 12 months, not to exceed 15 months	O&M Manual, Emergency shut down procedures

¹ Reference to operator training refers to workshops conducted by state and regional associations, such as the Iowa Association of Municipal Utilities and the Midwest Energy Association (formerly known as Midwest Gas Association), manufacturers and distributors of gas industry products and equipment, state regulatory agencies, and other organizations. Specific references to MEA materials are to training modules in the Midwest Energy Association's Operator Qualification Training series.

See Appendix 2 for MEA's new training material cross-reference guide.

Division 4a of the Operator Qualification Program contains an Individual Qualification Summary. This form will identify the qualified individual, the covered tasks that each individual is qualified to perform, the dates of current qualification for each task, and the qualification methods. Form 4a is to be maintained by and is the property of the individual. If form 4a is not used, other appropriate recordkeeping methods may also be acceptable, such as, computer databases and workshop documentation, etc. Training records that support qualified person qualifications shall be maintained while the individual is performing the covered task and of persons that are no longer performing covered tasks shall be retained for the time period of five years.

INDIVIDUAL QUALIFICATION SUMMARY

For

(Employee Name)

This table is used to record the progress of an individual in successfully demonstrating qualification in a competency or skill required to perform tasks necessary for the operation of a natural gas system. A certificate for each competency or skill, which verifies qualification by written evaluation or performance evaluation, must be attached. (Protocol 3.01, § 192.807/195.507)

	Competencies and Skills	Original Qualification Method	Re-Qualif. Method	Re-Qualif. Period	Original Date Qualified	Date Re-Qualified
Sec. 1	Fundamentals of Natural Gas					
1.1	Characteristics and hazards of natural gas	Written evaluation	Written evaluation	60 months, not to exceed 60 months		
1.2	Potential ignition sources: indoor and outdoor	Written evaluation	Written evaluation	60 months, not to exceed 60 months		
1.3	Recognizing emergency conditions	Written evaluation	Written evaluation	60 months, not to exceed 60 months		
1.4	Recognizing and reporting natural gas leaks	Written evaluation	Written evaluation	60 months, not to exceed 60 months		
Sec. 2	Record keeping					
2.1	Documenting materials and installation records	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		

2.2	Documenting maximum allowable operating pressure (MAOP)	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
2.3	System up-rating	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
2.4	Investigating and documenting line failure	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
2.5	Accident reporting	Written evaluation	Written evaluation	60 months, not to exceed 60 months		
Sec. 3	Marking and Mapping Facilities					
3.1	Locating facilities using the conductive method	Written and hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
3.2	Locating facilities using the inductive method	Written and hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
3.3	Locating facilities using the inductive method (two persons)	Written and hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
3.4	Determining depth through triangulation	Written and hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
3.5	System mapping	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
Sec. 4	Fundamentals of Field Safety in Construction, Operation, and Maintenance					
4.1	Personal protective equipment	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
4.2	Power tool safety	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
4.3	Proper firefighting techniques	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
4.4	Controlling the accidental release of gas	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
4.5	Soil subsidence	Written evaluation	Written or hands-on	36 months, not to		

			eval.	exceed 39 months		
4.6	Atmospheric corrosion	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
4.7	Recognizing unsafe meter sets	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
4.8	Confined space entry (vaults, etc.)	Written evaluation	Written or hands-on eval.	Initial, then 12 months, not to exceed 15 months		
4.9	Job site protection	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
4.10	Purging safety	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
4.11	Pressure testing steel and plastic pipeline	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
4.12	Abandoning facilities	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
4.13	Excavation safety	Written evaluation	Written or hands-on eval.	Initial, then 12 months, not to exceed 15 months		
Sec. 5	Fundamentals of Gas Leaks - Survey and Response					
5.1	Leak classification	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
5.2	Procedures for leak surveys and patrols	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
5.3	Combustible gas indicators	Written or Hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months (or new equip.)		
5.4	Electronic gas detectors	Written or Hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months (or new equip.)		

5.5	Flame ionization	Written or Hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months (or new equip.)		
5.6	Bar hole testing and purging	Written or Hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
Sec. 6	Fundamentals of Customer Service					
6.1	Carbon monoxide (CO) testing	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
6.2	Investigating leaks	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
6.3	Combustion and ventilation air requirements	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
6.4	Pilot light operation	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
6.5	Gas-air adjustment	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
6.6	Appliance venting	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
6.7	Pressure checks to establish gas service	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
6.8	Establishing and disconnecting gas	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		

Sec. 7	Fundamentals of Construction					
7.1	Pressure testing steel and plastic pipeline	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
7.2	Procedures for abandoning facilities	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
7.3	Cathodic protection (general)	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
7.4	Constructing facilities across streets, railroads, and waterways	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
7.5	Operating thermite welder	Written and hands-on evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
7.6	Installing tracer wire	Written Evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
7.7	Installing valves	Written Evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
7.8	Steel and cast iron repair fittings	Written and hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
7.9	Maintaining steel and cast iron Mains	Written Evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
7.10	Reinforcing steel and plastic mains	Written Evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
7.11	Plastic pipe joining (fusion)	Hands-on evaluation	Hands-on evaluation	12 months, not to exceed 15 months		
7.12	Plastic pipe joining (mechanical couplings)	Hands-on evaluation	Hands-on evaluation	36 months, not to exceed 39 months		
7.13	Recognition of defective material	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
7.14	Steel pipe joining by welding	Per approved welding procedures	Per approved welding procedures	12 months, not to exceed 12 months		

7.15	Steel pipe joining by mechanical couplings	Written and hands-on evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
7.16	Damage prevention	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
7.17	Application of padding and shielding	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
7.18	Replacing emergency valves	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
7.19	Installing meter sets	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
7.20	Tapping and stopping steel pipe 1" through 4"	Hands-on evaluation	Hands-on evaluation	36 months, not to exceed 39 months		
7.21	Tapping and stopping steel pipe 6" through 8"	Hands-on evaluation	Hands-on evaluation	36 months, not to exceed 39 months		
7.22	Tapping and stopping polyethylene pipe	Hands-on evaluation	Hands-on evaluation	60 months, not to exceed 60 months		
7.23	Vault abandonment	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
Sec. 8	Fundamentals of Construction – Heavy Equipment Operation					
8.1	Operating backhoe	Written and hands-on evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
8.2	Operating trencher	Hands-on evaluation	Hands-on evaluation	36 months, not to exceed 39 months		
8.3	Operating boring equipment	Hands-on evaluation	Hands-on evaluation	36 months, not to exceed 39 months		
8.4	Ditch and backfill inspection	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
Sec. 9	Fundamentals of Measurement and					

	Control					
9.1	Metering	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
9.2	Odorization measurement and control	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
Sec. 10	Corrosion Control					
10.1	Cathodic protection	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
10.2	Internal corrosion	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
10.3	External corrosion	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
10.4	Atmospheric corrosion	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
10.5	Coatings	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
10.6	Holiday detection (coating inspection)	Written and hands-on evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
10.7	Painting and jacketing above ground facilities	Hands-on evaluation	Hands-on evaluation	36 months, not to exceed 39 months		
10.8	Installation of cathodic protection (sacrificial anode system)	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
10.9	Installation of impressed current system	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
10.10	Inspection, monitoring cathodic protection system	Written evaluation	Written or hands-on eval.	36 months, not to exceed 39 months		
Sec. 11	Odorization					
11.1	Operating and maintaining differential odorant system	Written and hand-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		

11.2	Operating and maintaining injection odorant system	Written and hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
11.3	Testing odorant level	Written and hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
Sec. 12	Other Operating and Maintenance Skills					
12.1	Operating valves (including emergency valves), regulators, and relief valves	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
12.2	Inspecting pressure regulating and limiting stations	Written or hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
12.3	Inspecting and maintaining key valves	Written or hands-on evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
12.4	System uprating	Written evaluation	Written or hands-on eval.	60 months, not to exceed 60 months		
Sec. 13	Operating Peak Shaving Plant (Propane/Air mixture/Injection)					
13.1	Pre-start-up procedure	Hands-on	Hands-on evaluation	Initial, then 12 months, not to exceed 15 months		
13.2	Start-up/operating procedures/shut down	Hands-on	Hands-on evaluation	Initial, then 12 months, not to exceed 15 months		
Sec. __	Other					

Division 4b of the Operator Qualification Program contains a Group Qualification Summary. This form will identify each of the qualified individuals, the covered tasks that each individual is qualified to perform, and the dates of current qualification for each task. Form 4b is to be maintained by the facility administrator and is the property of the gas facility. If form 4b are not used, other appropriate recordkeeping methods may also be acceptable, such as, computer databases and workshop documentation, etc. Training records that support qualified person qualifications shall be maintained while the individual is performing the covered task and of persons that are no longer performing covered tasks shall be retained for the time period of five years.

OPERATOR QUALIFICATION (GROUP) SUMMARY

For

_____ (Name of Utility/Organization)

Where _____ the employer copy of individual qualification summaries and related written and hands-on performance evaluations are retained in individual employee records or elsewhere, this table may be used by the operator to summarize the individual qualifications of all or a group of individuals who perform tasks necessary for the operation of a natural gas system.

(Protocol 3.01, §192.807/195.507)

Competencies and Skills		(List date of current qualification for each individual)					
Sec. 1	Fundamentals of Natural Gas						
1.1	Characteristics and hazards of natural gas						
1.2	Potential ignition sources: indoor and outdoor						
1.3	Recognizing emergency conditions						
1.4	Recognizing and reporting natural gas leaks						
Sec. 2	Record keeping						
2.1	Documenting materials and installation records						
2.2	Documenting maximum allowable operating pressure (MAOP)						
2.3	System up-rating						

2.4	Investigating and documenting line failure						
2.5	Accident reporting						
Sec. 3	Marking and Mapping Facilities						
3.1	Locating facilities using the conductive method						
3.2	Locating facilities using the inductive method						
3.3	Locating facilities using the inductive method (two persons)						
3.4	Determining depth through triangulation						
3.5	System mapping						
Sec. 4	Fundamentals of Field Safety in Construction, Operation, and Maintenance						
4.1	Personal protective equipment						
4.2	Power tool safety						
4.3	Proper firefighting techniques						
4.4	Controlling the accidental release of gas						
4.5	Soil subsidence						
4.6	Atmospheric corrosion						
4.7	Recognizing unsafe meter sets						
4.8	Confined space entry (vaults, etc.)						
4.9	Job site protection						
4.10	Purging safety						
4.11	Pressure testing steel and plastic pipeline						
4.12	Abandoning facilities						
4.13	Excavation safety						

Sec. 5	Fundamentals of Gas Leaks - Survey and Response						
5.1	Leak classification						
5.2	Procedures for leak surveys and patrols						
5.3	Combustible gas indicators						
5.4	Electronic gas detectors						
5.5	Flame ionization						
5.6	Bar hole testing and purging						
Sec. 6	Fundamentals of Customer Service						
6.1	Carbon monoxide (CO) testing						
6.2	Investigating leaks						
6.3	Combustion and ventilation air requirements						
6.4	Pilot light operation						
6.5	Gas-air adjustment						
6.6	Appliance venting						
6.7	Pressure checks to establish gas service						
6.8	Establishing and disconnecting gas						
Sec. 7	Fundamentals of Construction						
7.1	Pressure testing steel and plastic pipeline						
7.2	Procedures for abandoning facilities						
7.3	Cathodic protection (general)						
7.4	Constructing facilities across streets, railroads, and waterways						
7.5	Operating thermite welder						
7.6	Installing tracer wire						
7.7	Installing valves						

7.8	Steel and cast iron repair fittings						
7.9	Maintaining steel and cast iron Mains						
7.10	Reinforcing steel and plastic mains						
7.11	Plastic pipe joining (fusion)						
7.12	Plastic pipe joining (mechanical couplings)						
7.13	Recognition of defective material						
7.14	Steel pipe joining by welding						
7.15	Steel pipe joining by mechanical couplings						
7.16	Damage prevention						
7.17	Application of padding and shielding						
7.18	Replacing emergency valves						
7.19	Installing meter sets						
7.20	Tapping and stopping steel pipe 1" through 4"						
7.21	Tapping and stopping steel pipe 6" through 8"						
7.22	Tapping and stopping polyethylene pipe						
7.23	Vault abandonment						
Sec. 8	Fundamentals of Construction – Heavy Equipment Operation						
8.1	Operating backhoe						
8.2	Operating trencher						
8.3	Operating boring equipment						
8.4	Ditch and backfill inspection						
Sec. 9	Fundamentals of Measurement and Control						
9.1	Metering						

9.2	Odorization measurement and control						
Sec. 10	Corrosion Control						
10.1	Cathodic protection						
10.2	Internal corrosion						
10.3	External corrosion						
10.4	Atmospheric corrosion						
10.5	Coatings						
10.6	Holiday detection (coating inspection)						
10.7	Painting and jacketing above ground facilities						
10.8	Installation of cathodic protection (sacrificial anode system)						
10.9	Installation of impressed current system						
10.10	Inspection, monitoring cathodic protection system						
Sec. 11	Odorization						
11.1	Operating and maintaining differential odorant system						
11.2	Operating and maintaining injection odorant system						
11.3	Testing odorant level						
Sec. 12	Other Operating and Maintenance Skills						
12.1	Operating valves (including emergency valves), regulators, and relief valves						
12.2	Inspecting pressure regulating and limiting stations						
12.3	Inspecting and maintaining key valves						
12.4	System uprating						
Sec. 13	Operating Peak Shaving Plant (Propane/Air mixture/Injection)						

EVALUATION OF HANDS-ON SKILLS

Division 5 of the Operator Qualification Program contains evaluating and qualifying hands-on demonstrations of skills necessary to perform tasks on gas systems. Operators may use the forms in Division 5 or attend appropriate workshops in obtaining qualification or re-evaluation. Appropriate documentation forms, attendance records, or manufacturer's procedures maybe used in lieu of the forms supplied in Division 5.

WHEN PERFORMING DIRECT OBSERVATION THE OBSERVER MUST APPROPRIATELY DOCUMENT THE OBSERVATION, FORM "DIRECT OBSERVATION OF UNQUALIFIED PERSON PERFORMING COVERED TASK UNDER DIRECT SUPERVISION OF QUALIFIED INDIVIDUAL" IN DIVISION 5 CAN BE USED TO DOCUMENT THE OBSERVATION.

WHEN COMMUNICATION OF NOTICE OF CHANGE USE FORM "NOTICE OF CHANGE."

WHEN COMMUNICATING A REQUEST FOR CHANGE AND/OR ADDITIONS TO THIS PLAN USE FORM "FEEDBACK FORM."

(PROTOCOLS 3.02, 4.01, 8.01, 1.17, §§ 192.805/195.505, 192.803/195.503)

NOTICE OF CHANGE

This page may be reproduced as needed for recording changes to the Operator Qualification Program.

Utility/Company: _____

Date of Change: _____

Task(s) Impacted		O&M Procedure(s) Impacted		Regulations Impacted		Incidents, For Cause, Near Miss		Industry Accidents	
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No

What Communicated: (Attach any supporting documentation.)

How Communicated:

Tasks Impacted:

Individuals Impacted:

Name of Individual(s) receiving the changes associated with the performance of covered tasks.	Place an "X" in the boxes below when communication is completed for that individual

Name and Position of Person Processing the Change:

After completing this form file in Division 7.

Competency/skill: Direct Observation of Unqualified Person Performing Covered Task Under Direct Supervision of Qualified Individual

DATE: _____

LOCATION:

(Address and/or GPS Location)

TASK BEING PERFORMED:

PROCEDURES USED:

Unqualified Individuals Name: _____ **I.D. Number:** _____
(Print)

Number of unqualified persons being observed at one time: _____

Qualified Observer Signature

Unqualified Individual Signature

Competency/skill: 3.1 Locate facilities using the conductive method

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
Connect the Transmitter			
1	Connect the transmitter cable to a metal riser pipe or locator wire, with the transmitter as far from the connection as the cable will allow.		
2	Insert the ground rod/plate to one side and away from the pipe, as far from the transmitter as the other connecting cable will allow.		
3	Pour a small amount of water at the ground site to increase conductivity.		
Locate the Pipe			
4	Set the receiver sensitivity control to the low range.		
5	Hold the receiver parallel with the pipe and in a vertical position.		
6	Sweep the receiver close to the ground using short, smooth moves without swinging or rocking.		
7	Find and mark the general location of the pipe by listening for the loudest signal.		
8	Hold the receiver face up in a horizontal position.		
9	Adjust the sensitivity control to medium or high .		
10	Sweep the receiver back and forth over the general location, perpendicular to the pipe.		
11	Find the null and mark its location according to Company policy.		
Comments:			

Participant Name: _____

I.D. Number: _____

Test Date: _____

Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill: 3.2 Locate facilities using the inductive method (one person)

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No
Position the Transmitter			
1	Place the transmitter over the pipe at a 45° angle to its length.		
2	Set the receiver range switch and start with the receiver and transmitter at least 30' apart.		
3	Holding the receiver parallel with the pipe and in a vertical position, walk toward the pipe from one side.		
4	When the maximum signal occurs, stop and mark the spot on the ground directly below the receiver.		
5	Move the transmitter and place it on the mark in a vertical position, parallel to and directly above the pipe.		
6	Take the receiver back down the pipeline at least 30 feet away from the transmitter.		
7	Sweep the receiver back and forth over the pipe close to the ground, using short, smooth moves with receiver parallel to transmitter and vertical.		
8	Move the transmitter to the second mark and return to the first mark.		
Locate the Pipe			
9	Sweep the receiver loose to the ground using short, smooth moves.		
10	Listen for the maximum signal to find the general location of the pipe.		
Pinpoint and Mark the Pipe			
11	Hold the receiver face up in a horizontal position.		
12	Adjust the sensitivity control to medium or high .		
13	Sweep the receiver back and forth over the general location, perpendicular to the pipe.		
14	Find the null and mark its location according to Company policy.		
Comments: (see reverse)			

Participant Name: _____ I.D. Number: _____

Test Date: _____ Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill: 3.3 Locate facilities using the inductive method (two persons)

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
Position the Transmitter			
1	Start with the receiver and transmitter at least 30' apart.		
2	Keep the units parallel and walk toward the pipe.		
3	Set receiver down at the spot where the signal is the strongest and direct the second person to move transmitter back and forth to fine tune the signal.		
4	When the signal is strongest, place the transmitter on the ground in a vertical position parallel to and directly above the pipe.		
Locate the pipe			
5	Sweep the receiver back and forth over the pipe, close to ground, using short, smooth moves with receiver parallel to transmitter and vertical.		
6	Listen for the maximum volume of the signal.		
Pinpoint and mark the pipe			
7	Hold the receiver face up in a horizontal position.		
8	Adjust the sensitivity control to medium or high .		
9	Sweep the receiver back and forth over the general location, perpendicular to the pipe.		
10	Find the null and mark its location according to Company policy.		
Comments:			

Participant Name: _____ I.D. Number: _____

Test Date: _____ Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill: 3.4 Determining depth through triangulation

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
Triangulate the pipe			
1	Set the sensitivity control on the receiver to medium or high .		
2	Hold the receiver as close to the ground as possible at a 45° angle (check the depth level indicator on the receiver).		
3	Begin directly above the pipe and move the receiver slowly, at a right angle, away from the pipe.		
4	At the null, mark the spot directly below the center of the receiver.		
Calculate the depth			
5	Measure the distance from this mark to the mark for the pinpointed center of the pipe.		
6	Subtract the distance from the center of the receiver to the ground.		
7	Correctly state the approximate pipe depth.		
8	Document according to Company procedures.		
Comments:			

Participant Name: _____ I.D. Number: _____

Test Date: _____ Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill: 5.3 Combustible gas indicators

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Turn on power		
2	Warm up battery check		
3	Set zero in fresh air		
4	Test gas in L.E.L. mode		
5	Test gas in U.E.L. mode		
6	Clear machine in fresh air		
7	Shut down		
8	Store in proper manner		
9			
Comments:			

Participant Name: _____ I.D. Number: _____

Test Date: _____ Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill: 5.4 Electronic gas detectors

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
Start Up / Shut Down			
1	Turn on power / Allow for warm up		
2	Check battery power		
3	Set zero in fresh air		
4	Test gas in L.E.L. mode		
5	Test gas in U.E.L. mode		
6	Purge in fresh air		
7	Shut down		
8	Store in proper containment		
9			
Comments:			

Participant Name: _____ I.D. Number: _____

Test Date: _____ Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill: 5.5 Flame ionization

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
Visual inspection and filter change			
1	Visually inspect the FI unit to detect any damage or flaws.		
2	Check the intake cone filter. Install a new filter so that it is properly seated according to manufacturers and Company specifications.		
3	Check the in-line filter. Install a new filter so that it is properly seated according to manufacturers and Company specifications.		
4	Check the probe. Clean if dirty.		
Refueling			
5	Connect the FI unit to the fuel supply tank.		
6	Fill the FI unit fuel tanks to the proper level.		
7	Safely disconnect the FI unit from the fuel supply, ensuring that all connections are appropriately closed.		
Calibrating			
8	Make sure that the FI unit has been tested for accuracy.		
9	Turn the FI unit POWER and the IGNITION to ON .		
10	Set the SENSITIVITY to 50 PPM .		
11	Hold the sensor head (intake cone) over the test cup of the certified 50 ppm gas sample.		
12	Turn the 50 ppm gas sample ON at MINIMUM flow.		
13	Watch the needle on the FI unit for full deflection.		
14	If the needle does not reach full deflection in 3 seconds, report the unit according to Company policy.		
Comments: (see reverse)			

Participant Name: _____

I.D. Number: _____

Test Date: _____

Location: _____

Evaluation: **Qualified**

Not Qualified

Qualified Observer Signature

Participant Signature

Competency/skill: 5.6 Bar hole testing and purging

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Make bar holes at 10' intervals		
2	Establish extent of leak		
3	Establish strongest reading		
4	Allow to vent / Re-test		
5	Locate approximate location of leak		
6	Document prior to digging		
7	Classify leak		
8			
9			
Comments:			

Participant Name: _____ I.D. Number: _____

Test Date: _____ Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill: 7.5 Operating thermite welder

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
Preparing the pipe			
1	Place fire extinguisher upwind.		
2	Put on personal protective equipment including gloves and eye protection.		
3	Remove coating from 3" x 3" area at weld location.		
4	Use wire brush and file to clean pipe to shiny metal.		
Preparing the wire			
5	Strip 2" insulation from wire.		
6	Scrape, file, or sand the bare end clean.		
7	Crimp copper sleeve on wire.		
8	Wrap wire around pipe and twist it.		
9	Inspect mold for defects and correct size.		
10	Place steel disk in mold.		
11	Place welding and starting powder into the mold.		
Preparing the mold			
12	Place mold on pipe at prepared location.		
13	Insert wire in mold.		
14	Set the mold with wire parallel to the pipe.		
15	Hold mold firmly		
16	Ignite with sparking gun.		
17	Tape to test weld.		
Making the weld			
18	Repair coating.		
Comments: (see reverse)			

Participant Name: _____ **I.D. Number:** _____

Test Date: _____ **Location:** _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill: 7.8 Steel and cast iron repair fittings

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Check atmosphere in bell hole.		
2	Check pipe condition for replacement.		
3	Clean coating and other foreign material adequately.		
4	Lubricate gasket material.		
5	Torque bolts in proper sequence.		
6	Check for leaks/other damage.		
7	Properly coat before backfilling.		
Comments:			

Participant Name: _____ I.D. Number: _____

Test Date: _____ Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill: 7.11 Plastic pipe joining (fusion)

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Butt fusion / visual		
2	Side wall fusion / visual		
3	Butt fusion / strap test		
4	Sidewall fusion / strap test		
5			
6			
7			
8			
9			
Comments:			

Participant Name: _____

I.D. Number: _____

Test Date: _____

Location: _____

Evaluation: **Qualified**

Not Qualified

Qualified Observer Signature

Participant Signature

Competency/skill: 7.12 Plastic pipe joining (mechanical couplings)

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Cut ends of pipe square		
2	Clean ends of pipe		
3	Measure ends of pipe for insertion		
4	Install locking collar and insert		
5	Install locking collar over insert		
6	Repeat steps 1 through 5		
7			
8			
9			
Comments:			

Participant Name: _____

I.D. Number: _____

Test Date: _____

Location: _____

Evaluation: **Qualified**

Not Qualified

Qualified Observer Signature

Participant Signature

Competency/skill: 7.15 Steel pipe joining by mechanical couplings

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
Prepare coupling and pipe			
1	Disassemble, if necessary, and soap gaskets and pipe ends.		
2	Clean the pipe ends thoroughly. (Remove all wrapping, oil, loose scale, rust, cutter burrs and anything else that could prevent gasket seating.)		
3	Place end nuts, retainer cups, and soapy gaskets on the pipe ends. (Line up the pipe ends, leaving at least 1/4 " gap.)		
Install coupling			
4	Measure the coupling body to manufacturer's specifications. (Mark the measurement on one pipe end.)		
5	Place the coupling on pipe with the end of coupling body at the mark. (Make sure that the coupling body is clean.)		
6	Slide gaskets and retainer cups into place. (Slide the retainer cups against the gaskets.)		
7	Slide end nuts or caps into place. (Gradually tighten and torque to specification. If the coupling is hydraulic, inject grease or hydraulic fluid.)		
8	Check electrical continuity. (If using a non-insulated coupling, be sure there is continuity. If using an insulated coupling, be sure there is electrical isolation.)		
9	Clean away soap and other foreign material.		
10	Wrap the exposed coupling and pipe to ensure corrosion protection.		
Comments: (see reverse)			

Participant Name: _____

I.D. Number: _____

Test Date: _____

Location: _____

Evaluation: **Qualified**

Not Qualified

Qualified Observer Signature

Participant Signature

Competency/skill: 7.20 Tapping and stopping steel pipe 1” through 4”

Qualified observer instructions:

1. For the performance steps below, observe the participant and check “Go” for successful completion of the step or “No Go” if remediation of the step is required.
2. A “No Go” rating on any of the steps constitutes a “No Go” for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Install fitting to pipe		
2	Set up tapping machine		
3	Install valve / tapping machine		
4	Make tap through pipe		
5	Remove machine / close valve		
6	Set up and install stop in machine		
7	Perform stop in pipe		
8	Remove stop		
9	Install completion plug and wrap pipe		
Comments:			

Participant Name: _____ I.D. Number: _____

Test Date: _____ Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill: 7.21 Tapping and stopping steel pipe 6” through 8”

Qualified observer instructions:

1. For the performance steps below, observe the participant and check “Go” for successful completion of the step **or** “No Go” if remediation of the step is required.
2. A “No Go” rating on any of the steps constitutes a “No Go” for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Install fitting to pipe		
2	Set up tapping machine		
3	Install valve / tapping machine		
4	Make tap through pipe		
5	Remove machine / close valve		
6	Set up and install stop in machine		
7	Perform stop in pipe		
8	Remove stop		
9	Install completion plug and wrap pipe		
Comments:			

Participant Name: _____ I.D. Number: _____

Test Date: _____ Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill: 7.22 Tapping and stopping polyethylene pipe

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Sidewall fusion		
2	Remove cap		
3	Turn Allen lead clockwise till bottoms out		
4	Turn counter clockwise till 1 thread end from the top		
5	Replace cap on top of tee		
6	Test to manufacturers procedure		
7			
8			
9			
Comments:			

Participant Name: _____ I.D. Number: _____

Test Date: _____ Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill: 8.1 Operating backhoe

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Check fluid levels		
2	Visual check of tires		
3	Visual check of outriggers		
4	Visual check of levers / controls		
5	Start up procedures		
6	Proper positioning of machine		
7	Operate control levers		
8	Proper placement of dirt		
9	Shut down procedures		
Comments:			

Participant Name: _____ I.D. Number: _____

Test Date: _____ Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill: 8.2 Operating trenchers

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Visual inspection		
2	Check fluid levels		
3	Check safety locks		
4	Start up procedures		
5	Proper placement of trencher		
6	Engage digger chain		
7	Lower boom to proper depth		
8	Engage forward motion		
9	Shut down procedures		
Comments:			

Participant Name: _____

I.D. Number: _____

Test Date: _____

Location: _____

Evaluation: **Qualified**

Not Qualified

Qualified Observer Signature

Participant Signature

Competency/skill: 8.3 Operating boring equipment

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Visual inspection		
2	Check fluid levels		
3	Start up procedures		
4	Engage boring rod		
5	Proper angle of machine		
6	Proper rotation of bore rod		
7	Travel speed of bore rod		
8	Check rotational speed of rod		
9	Check location of bore rod		
10			
11			
Comments:			

Participant Name: _____ I.D. Number: _____

Test Date: _____ Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill: 10.6 Holiday detection (coating inspection)

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Visual inspection of machine		
2	Check voltage settings		
3	Install proper spring collar		
4	Pipe properly grounded		
5	Placement of transmitter ground		
6	Turn machine on		
7	Travel speed		
8	Recognition of defects		
9			
Comments:			

Participant Name: _____

I.D. Number: _____

Test Date: _____

Location: _____

Evaluation: **Qualified**

Not Qualified

Qualified Observer Signature

Participant Signature

Competency/skill: 10.7 Painting and jacketing above ground facilities

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Remove all loose paint and particles.		
2	Mask all regulator vents.		
3	Mask all di-electric fittings.		
4	Mask index glass.		
5	Mask all required identification tags.		
6	Paint all exposed metal.		
Comments: 			

Participant Name: _____

I.D. Number: _____

Test Date: _____

Location: _____

Evaluation: **Qualified**

Not Qualified

Qualified Observer Signature

Participant Signature

Competency/skill: 11.1 Operating and maintaining a differential odorant system

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Close valves in proper sequence.		
2	Bleed off pressure in appropriate manner.		
3	Refill odorant tank properly.		
4	Slowly open valves in proper sequence.		
5	Accurately document amount of odorant used.		
Comments: 			

Participant Name: _____

I.D. Number: _____

Test Date: _____

Location: _____

Evaluation: **Qualified**

Not Qualified

Qualified Observer Signature

Participant Signature

Competency/skill: 11.2 Operating and maintaining an injection odorant system

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Close valves in proper sequence.		
2	Refill odorant tank properly.		
3	Reopen valves in proper sequence.		
4	Check for air/lock.		
5	Accurately document amount of odorant used.		
6	Check for filter saturation.		
Comments: 			

Participant Name: _____

I.D. Number: _____

Test Date: _____

Location: _____

Evaluation: **Qualified**

Not Qualified

Qualified Observer Signature

Participant Signature

Competency/skill: 11.3 Testing odorant level

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1	Select appropriate test sites.		
2	Purge machine before use.		
3	Season machine.		
4	Test for odorant level in smooth controlled motions.		
5	Record readings accurately.		
6	Purge machine before turning off.		
Comments:			

Participant Name: _____

I.D. Number: _____

Test Date: _____

Location: _____

Evaluation: **Qualified**

Not Qualified

Qualified Observer Signature

Participant Signature

Competency/skill: 12.3 Inspecting and maintaining key valves

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
Lubricating valves			
1	Correctly attach lubricating device to the valve.		
2	Apply lubrication without over lubricating.		
3	Correctly detach the lubricating device and clean the lubrication point.		
Operating valves			
4	Check to see if valve is open or closed.		
5	Aware of section valve controls.		
6	Check size of valve.		
7	Correctly attach wrench to valve.		
8	Turn valve correctly.		
9	Return valve to normal operating position.		
Comments:			

Participant Name: _____ I.D. Number: _____

Test Date: _____ Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill: 13.2 Operating peak shaving plant (propane/air mixture/injection): Start-up/operating procedures/shut down

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step or "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No Go
Accordance with operators manual for specific equipment used			
1			
2			
3			
4			
5			
6			
7			
8			
9			
Comments: 			

Participant Name: _____ I.D. Number: _____

Test Date: _____ Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

Competency/skill:

Qualified observer instructions:

1. For the performance steps below, observe the participant and check "Go" for successful completion of the step **or** "No Go" if remediation of the step is required.
2. A "No Go" rating on any of the steps constitutes a "No Go" for the entire performance skill. Performance skills must be completed with 100% accuracy.
3. Both the individual taking the performance evaluation and the qualified observer must sign this form upon completion of the evaluation.

Performance Step Analysis		Go	No-Go
1			
2			
3			
4			
5			
6			
7			
8			
9			
Comments:			

Participant Name: _____ I.D. Number: _____

Test Date: _____ Location: _____

Evaluation: **Qualified** **Not Qualified**

Qualified Observer Signature

Participant Signature

WRITTEN EVALUATION OF COMPETENCIES AND SKILLS

Division 6 of the Operator Qualification Program may contain copies of tests used in the written evaluation and qualification competencies and skills necessary to perform tasks on gas systems. Copies of examination instruments are generally not included, where qualification is certified by an outside training organization.

TRAINING MATERIALS

Division 7 of the Operator Qualification Program may contain attachments describing course descriptions or outlines, lesson plans, and other materials used to prepare personnel for qualification through this program. For example, a brochure describing a welder qualification workshop could be retained in this division to document the operator's efforts to provide training in required competencies and skills.

When communication of change, when using the "Notice of Change" form is completed, file in Division 7.

(Protocol 1.04, 8.01, §§ 192.803/195.503, 192.805/195.505)

COURSE DESCRIPTIONS AND PREREQUISITES FOR MIDWEST ENERGY TRAINING MODULES

The following is a copy of Appendix B of the Midwest Energy Association's (A.K.A. Midwest Gas Association) *Operator Qualification Training Program Course Management Plan*. The appendix describes the training modules offered by Midwest Energy Association. The Iowa Association of Municipal Utilities through an agreement with Midwest Energy Association reproduces the copyrighted material.

(Protocol 4.02, §192.803/195.503)

Module Number: 101 **Title:** Characteristics and Hazards of Natural Gas

Prerequisite: None

Description: General introduction to natural gas. Topics include: composition of natural gas; hydrocarbon chemistry; physical properties of natural gas; combustion of natural gas; the fire triangle and tetrahedron; upper and lower explosive limits of natural gas; carbon monoxide.

Module Number: 102 **Title:** Potential Ignition Sources: Indoor and Outdoor

Prerequisite: 101

Description: Introduction to ignition sources. Topics include: open flame ignition sources; electric spark sources - arcing and static electricity; sources resulting from work on piping.

Module Number: 103 **Title:** Recognizing Emergency Conditions

Prerequisite: 101, 102

Description: Recognizing conditions that could lead to emergency failure of the natural gas system or equipment. Topics include: potential consequences of failures; potential failure conditions including construction defects, corrosion, damage, line stress, mechanical failure, human error, and pipeline obstructions; corrective action.

Module Number: 104 **Title:** Recognizing and Reporting Natural Gas Leaks

Prerequisite: 101, 102, 103

Description: Recognizing and reporting leaks and potential leaks encountered during the normal course of daily activity. Topics include: recognizing leaks by sight, sound, and smell; recognizing leak conditions such as tampering and meter damage; reporting leaks according to whether or not they constitute an immediate danger; ensuring customer and employee safety.

Module Number: 111 **Title:** Personal Protective Equipment

Prerequisites: 101, 102, 103, 104

Description: Use retardant clothing and PPE. Topics include: requirements and procedures for wearing flame retardant clothing; fresh air breathing equipment and components; proper use and maintenance of breathing equipment.

Module Number: 121 **Title:** Power Tool Safety

Prerequisite: 101, 102, 103, 104, 111

Description: Basic safety practices for working with the five basic types of power tools. Topics include: personal protective equipment; safety principles for using and maintaining power tools; safety practices for electric, liquid-fuel, hydraulic, pneumatic, and powder-actuated power tools.

Module Number: 122 **Title:** Proper Firefighting Techniques

Prerequisite: 101, 102, 103, 104, 111

Description: Selection of firefighting equipment and proper methods of fighting natural gas fires. Topics include: review of the fire triangle and tetrahedron; classes of fires; types and selection of dry chemical fire extinguishers; fire extinguisher inspection and maintenance; fire fighting procedures.

Module Number: 131 **Title:** Controlling the Accidental Release of Gas

Prerequisite: 101, 102, 103, 104, 122

Description: Introduction to accidental natural gas release. Topics include: definition of accidental release; causes of accidental release; corrective actions; examples of accidental release situations outdoors including damage to above grade facilities serving customers, damage to one-way and two-way feed transmission/distribution lines, damage to above grade district regulator stations with multiple and isolated feeds, and mechanical failure of relief valve; accidental release of natural gas indoors.

Module Number: 201 **Title:** Soil Subsidence

Prerequisites: 101, 102, 103, 104

Description: Soil subsidence as a possible cause of pipeline leaks or failure. Topics include: causes of soil subsidence including settling, shifting, and erosion; recognition and analysis of soil subsidence using visible signs, company and other records; documentation.

Module Number: 202 **Title:** Atmospheric Corrosion

Prerequisites: 101, 102, 103, 104

Description: Atmospheric corrosion as a possible cause of pipeline leaks or failure. Topics include: definition, types, and causes of atmospheric corrosion; atmospheric corrosion surveys; corrective action.

Module Number: 211 **Title:** Recognizing Unsafe Meter Sets

Prerequisites: 101, 102, 103, 104, 201, 202

Description: Unsafe meter sets as a possible cause of leaks or failure. Topics include misaligned meter sets; improper location; burial and overbuilding; corrosion; physical damage.

Module Number: 221 **Title:** Leak Classification

Prerequisites: 101, 102, 103, 104

Description: DOT leak classification requirements. Topics include: definitions of Grade 1, 2, and 3 leaks; guidelines for assigning leak grades; response to leaks; follow-up; documentation.

Module Number: 231 **Title:** Operating the Combustible Gas Indicator

Prerequisite: 101, 102, 103, 104, 221

Description: Introduction to operation and maintenance of the CGI. Topics include: CGI unit parts and function; pre-operation tests of the CGI unit; operation of the CGI unit in the field; documentation.

Module Number: 232 **Title:** Operating the Flame Ionization Unit

Prerequisite: 101, 102, 103, 104, 221

Description: Introduction to operation and maintenance of the FI unit. Topics include FI unit parts and function; pre-operation inspection and testing of the FI unit; field operation of the FI unit for walking and mobile surveys; documentation.

Module Number: 241 **Title:** Carbon Monoxide (CO) Testing

Prerequisites: 101, 102, 103, 104

Description: Introduction to CO testing. Topics include: recognizing the effects of CO gas on human beings; identifying situations that require CO testing; CO testing using indicator tubes and electronic CO monitors; actions to take when CO is detected; documentation.

Module Number: 244 **Title:** Emergency Response and Restoration of Service

Prerequisites: 101, 102, 103, 104, 131, 221

Description: Basic responses to emergency situations and information about restoration of service. Topics include: Identifying company procedures for reporting to state/federal authorities. Identify components of an effective repair plan, system mapping and isolation points, repair plan, and methods for reestablishing service after shut down.

Module Number: 251 **Title:** Odorization

Prerequisites: 101, 102, 103, 104

Description: Requirements and procedures for odorizing gas and testing odorant levels. Topics include: factors affecting sufficient odorization; odorization equipment testing; odorization equipment maintenance; testing for odorization levels; documentation.

Module Number: 261 **Title:** Bar Hole Testing and Purging

Prerequisite: 101, 102, 103, 104, 231

Description: Use of bar test equipment and CGI to identify gas migration, pinpoint underground leaks, and exhaust underground gas. Topics include: natural

gas migration; factors affecting migration patterns and rates; safety hazards of gas migration; determining the spread area of underground leaks; finding the leak source; exhausting gas.

Module Number: 271 **Title:** Leak Surveys and Patrols

Prerequisite: 101, 102, 103, 104, 201, 202, 232, 251

Description: Requirements and procedures for systematic leak survey of the natural gas system. Topics include: causes of leaks; leak detection equipment; kinds of surveys; kinds of facilities that require surveys; DOT survey requirements; procedures for walking, mobile, and business district surveys; patrols; documentation.

Module Number: 272 **Title:** Customer Leak Investigation

Prerequisite: 101, 102, 103, 104, 241, 251, 261

Description: Responding to customer reports of leaks. Topics include: arrival and entry procedures; indoor and outdoor leak detection and location; identifying and responding to hazardous conditions; documentation.

Module Number: 301 **Title:** Combustion and Ventilation Air

Prerequisite: 101, 102, 103, 104

Description: Introduction to air requirements for combustion of natural gas. Topics include: combustion terminology; complete and incomplete combustion; problems that result from incomplete combustion; conditions allowing for adequate combustion air.

Module Number: 311 **Title:** Pilot Lights

Prerequisite: 101, 102, 103, 104, 301

Description: Introduction to pilot lights and other appliance ignition systems. Topics include: automatic and non-automatic pilots; flame sensors and safety shutoffs including thermocouples, bimetal and hydraulic or mercury vaporization sensors; electronic ignition systems; inspection procedures for electronic ignition systems.

Module Number: 312 **Title:** Gas-Air Adjustment

Prerequisite: 101, 102, 103, 104, 301

Description: Introduction to gas burners and adjustment. Topics include: types of gas burners including yellow flame and blue flame burners; typical burner components; flame characteristics and factors affecting them; burner problems caused by improper gas-air mixture including lifting, flashback, extinction pop, yellow tipping, floating, and rollout.

Module Number: 313 **Title:** Venting

Prerequisite: 101, 102, 103, 104, 301

Description: Introduction to the purpose of venting and recognizing proper and improper venting conditions. Topics include: purpose of venting; factors affecting venting system design and operation; types of vents; code

requirements for venting; recognizing proper vent and connector installation; testing vents for establishment of gas.

Module Number: 321 **Title:** Pressure Checks to Establish Gas Service

Prerequisites: 101, 102, 103, 104

Description: Establishing proper gas inlet pressure. Topics include: pressure measurement instruments, including bourdon tubes, manometers, and electronic gauges; procedure for checking inlet pressure; problems associated with under pressurization and over-pressurization; calculating desired and actual gas flow.

Module Number: 322 **Title:** Establishing and Disconnecting Gas

Prerequisites: 101, 102, 103, 104, 272, 311, 312, 313, 321

Description: Requirements and procedures for establishing and disconnecting customer gas service. Topics include: verification of requesting location; piping and appliance checks; meter and regulator checks including low-flow and shut-in tests; purging and light-up procedures; disconnection of service; read over or succession; meter removal; documentation.

Module Number: 324 **Title:** Lighting Appliances

Prerequisites: 101, 102, 103, 104, 311, 312, 313, 321

Description: Performing purging and lighting on all types of residential gas appliances. Topics include: purging process and conditions requiring its use; identifying the three types of purging methods.

Module Number: 401 **Title:** Job Site Protection

Prerequisites: 101, 102, 103, 104

Description: Protection of job site for public and employee safety. Topics include: types of traffic control and protection devices and signs; placement of job site protection devices.

Module Number: 402 **Title:** Locating and Marking Facilities

Prerequisite: 101, 102, 103, 104, 401

Description: Use of the pipe locator to find and mark underground facilities. Topics include: pipe locator parts and operation; equipment check-out; direct requests and the one-call system; field markings of gas and other facilities; conductive locating procedure: inductive locating procedure; pinpoint centering of pipe; triangulation of pipe depth; permanent and temporary signs and markers.

Module Number: 403 **Title:** Backhoe Safety

Prerequisite: 101, 102, 103, 104, 401

Description: Basic safety principles for working with or around backhoes. Topics include: safe back hoe service and maintenance; procedure for loading and unloading back hoe on or off trailer; safety procedures for working with backhoes at the job site.

Module Number: 404 **Title:** Excavation and Shoring Safety

Prerequisites: 101, 102, 103, 104, 402, 403

Description: Techniques and protection for safe excavation. Topics include: cave-in causes and results; cave-in prevention factors including soil classification, water, and other factors; cave-in protection measures including support systems, sloping, and shielding; additional excavation precautions.

Module Number: 411 **Title:** Plastic Pipe Fusion

Prerequisite: 101, 102, 103, 104, 121

Description: Methods and procedures for fusing plastic pipe. Topics include: minimizing hazards of static electricity; equipment and procedure for butt, sidewall, and socket fusion; butt end and sidewall electrofusion.

Module Number: 412 **Title:** Joining Steel Pipe

Prerequisite: 101, 102, 103, 104, 121

Description: Methods and procedures for joining steel pipe. Topics include: overview of welding; when to use compression couplings; kinds of compression couplings; flange types; flange installation procedure.

Module Number: 421 **Title:** Pressure Testing Steel and Plastic Pipeline

Prerequisites: 101, 102, 103, 104, 411, 412

Description: Requirements, equipment, and procedures for pressure testing steel and plastic pipe. Topics include: facilities requiring pressure testing; DOT pressure testing requirements for transmission and distribution lines; pressure testing equipment; pressure testing procedure; documentation.

Module Number: 422 **Title:** Purging Safety

Prerequisite: 101, 102, 103, 104, 421

Description: Requirements and procedures for purging gas pipelines. Topics include: purging safety; purging with air; purging with natural gas; discharge venting; testing for complete purge.

Module Number: 431 **Title:** Cathodic Protection

Prerequisite: 101, 102, 103, 104, 422

Description: Introduction to corrosion prevention by cathodic protection. Topics include: fundamentals of corrosion; corrosion prevention measures; purpose and types of anodes; selection of anodes using soil resistivity; pipe-to-soil voltage measurement; anode installation; rectifiers; test stations; thermite welding procedures.

Module Number: 441 **Title:** Tapping/Stopping: 1.25" - 4" Pipe

Prerequisite: 101, 102, 103, 104, 404

Description: Operation of general and specialized tapping and stopping equipment
Topics include: operation of bagging and stopping equipment; operation of

T. D. Williamson and Mueller tapping equipment; operation of Rockford-Eclipse and Qualitech-Eclipse stopping equipment.

Module Number: 444 **Title:** Plastic Pipe Repair

Prerequisites: 101, 102, 103, 104, 111, 131, 401, 403, 404, 411, 422, 441

Description: Methods and procedures for repair of plastic pipe. Topics include: temporary repairs, squeeze tools, making permanent repairs, remove and replace damaged pipe.

Module Number: 451 **Title:** Installing Mains

Prerequisites: 101, 102, 103, 104, 431, 441

Description: Methods and procedures for installing steel and plastic pipe. Topics include: pipe handling and storage, trenching procedure, installing new mains by direct burial, plastic pipe insertion.

Module Number: 452 **Title:** Installing Service

Prerequisite: 101, 102, 103, 104, 451

Description: Methods and procedures for installing service lines. Topics include: review of service line terminology; service line materials; trenching; installing steel service lines; installing plastic service lines.

Module Number: 453 **Title:** Crossings

Prerequisite: 101, 102, 103, 104, 452

Description: Specific procedures for installing pipe across highway, rail, bridge, creek, and ravine crossings. Topics include: highway and railroad crossing procedures including licenses and permits, casings, boring, and depth of crossing; bridge crossing procedures including pipe expansion, support, and anchors; creek and ravine crossing procedures including trenching and protection.

Module Number: 461 **Title:** Steel and Cast Iron Repair Fittings

Prerequisite: 101, 102, 103, 104, 431

Description: Selecting and installing fittings. Topics include: selecting repair fittings for steel, cast iron, and plastic pipe; selecting main fittings for steel, cast iron, and plastic pipe; service fittings and techniques for connecting steel service to steel mains, steel service to cast iron mains, steel service to plastic mains, plastic service to plastic mains, plastic service to steel mains.

Module Number: 462 **Title:** Maintaining Steel & Cast Iron Mains

Prerequisites: 101, 102, 103, 104, 261, 453, 461

Description: Requirements and procedures for maintaining, repairing, and replacing steel or cast iron mains. Topics include: identifying areas of greatest potential hazard; repair and replacement criteria; pressure reduction and shutdown prior to repair; inspection procedures for exposed steel mains;

steel pipe repair methods; cast iron pipe repair methods; cast iron pipe protection.

Module Number: 463 **Title:** Reinforcing Steel & Plastic Mains

Prerequisite: 101, 102, 103, 104, 461

Description: Requirements and procedures for reinforcing mains. Topics include: identifying situations where reinforcement is required; kinds of reinforcement; procedures for reinforcing steel mains and plastic tie-ins to steel, cast iron, and plastic mains.

Module Number: 471 **Title:** Abandoning Facilities

Prerequisite: 101, 102, 103, 104, 462

Description: Procedures for deactivation of natural gas facilities. Topics include: reasons for deactivation; procedure for deactivating mains or service lines; discontinuing service; documentation.

Module Number: 501 **Title:** Safe Vault Entry

Prerequisite: 101, 102, 103, 104, 122

Description: Procedures for entering and working safely in vaults. Topics include: actions to take before entry; atmospheric testing; vault entry PPE; vault entry procedures; required rescue equipment and procedures.

Module Number: 511 **Title:** Inspecting and Maintaining Valves

Prerequisites: 101, 102, 103, 104

Description: Introduction to valves, and to the requirements and procedures for their inspection and maintenance. Topics include: valve designs and components; emergency and non-emergency valves; DOT inspection and maintenance requirements; valve inspection and maintenance procedure; documentation.

Module Number: 512 **Title:** Inspecting Pressure Regulating & Limiting Stations

Prerequisites: 101, 102, 103, 104, 131, 501, 511

Description: DOT requirements for inspecting pressure regulating and limiting stations, and vaults that house them. Topics include: MAOP; kinds of regulators and over pressure protection devices (OPPD); inspection requirements and procedures for regulators and OPPDs; vault inspection requirements and procedures; documentation.

Module Number: 521 **Title:** System Upgrading

Prerequisites: 101, 102, 103, 104, 261, 271, 463, 512

Description: Requirements and procedures for increasing system operating pressure. Topics include: Upgrading terminology including MAOP and SMYS; pipe and components; upgrading decision factors; field upgrading procedures; documentation.

APPENDIX 1

The following training material cross-reference guide is to assist operators in referencing Midwest Energy Association (MEA) training materials that are available. MEA training materials are a suggested type of training materials available to operators and are not required under the IAMU program. If other training material is used, that material should be documented in Division 7.

MEA is a consortium of energy industry organizations that pursue operational excellence by providing training and information resources for themselves and other organizations to enhance employee safety, productivity, and positive customer relations. MEA accomplish this by:

1. Seeking opportunities that leverage the power of association.
2. Connecting members so needs are expressed, information is shared, and problems are solved.
3. Pooling expertise and dollars to create unique, high value services.
4. Sponsoring major operating conferences, workshops and classes.
5. Creating "distance" or packaged training and certification services such as computer, video and workbook programs; tests and evaluations.
6. Developing compliance tools to meet OSHA, EPA and DOT regulations.

VIDEOS *This program is no longer distributed as of Jan 2003.*

The OQTP was developed to help natural gas operators and other users train and re-qualify their employees in basic safety subjects.

This qualification training is designed to comply with U. S. Department of Transportation (DOT) standards mandated by the Pipeline Safety Act of 1992. Minimum Federal safety standards for natural gas pipelines are published by DOT in Title 49 of the Code of Federal Regulations, part 192 (49 CFR §192).

The OQTP is a "generic" training course that serves many audiences. The core of the program covers common procedures and requirements for complying with Federal regulations and maintaining safe work conditions. The modular structure of the program allows individual Companies to add information to tailor the instruction to their own regional, State, or corporate policies.

OQforAll

More than eight years of development and testing have produced OQ for all, OQ for all is designed to complement your current training program and apprenticeship practices, providing everything you need to successfully meet the DOT Operator Qualification (OQ) Regulation.

Q41

The Q41 evaluation materials were developed using a process to ensure the reliability and validity of the materials. The development process relied on input from subject matter experts. The materials are designed to evaluate an individual's ability to perform covered tasks in accordance with the requirements in Title 49, Code of Federal Regulations, Part 192. In addition, the materials are designed to evaluate an individual's ability to recognize and react to abnormal operating conditions as required by the 49 CFR 192, Subpart N, Qualification of Pipeline Personnel.

APPENDIX 1

MEA TRAINING MATERIAL CROSS-REFERENCE GUIDE REQUIRED COMPETENCIES AND SKILLS

(Protocols 1.05, 2.02, 4.01, 5.02 §192.803/195.503, §192.805/195.505, §192.809/195.509 Amdt 192-90, 8-20-01)

	Competencies and Skills	Suggested Training Reference¹	Q41 References	OQforAll References
Sec. 1	Fundamentals of Natural Gas			
1.1	Characteristics and hazards of natural gas	Gas Fundamentals Training, MEA-101	Abnormal Operating Conditions Test	192-0101 Characteristics and Hazards of Natural Gas
1.2	Potential ignition sources: indoor and outdoor	Gas Fundamentals Training, MEA-102	Abnormal Operating Conditions Test	192-102 192-2011 Prevention of Accidental Ignition
1.3	Recognizing emergency conditions	Gas Fundamentals Training, MEA-103	CTS-2011 Prevention of Accidental Ignition	Abnormal Operating Conditions Module
1.4	Recognizing and reporting natural gas leaks	Gas Fundamentals Training, MEA-104	CTS-1201 Leakage Survey: Distribution & Transmission	192-1202 Outside Gas Leakage Investigation, Pinpointing, and Grading 192-1203 Inside Gas Leakage Investigation
Sec. 2	Record keeping			
2.1	Documenting materials and installation records	Operator's workshop, O&M Manual MEA-402	N/A	N/A
2.2	Documenting maximum allowable operating pressure (MAOP)	Operator's Workshop, O&M Manual MEA-421	CTS 1301 Leak and Strength Test – Service Lines, Mains, and Transmission Lines CTS 1422 Segment Repair, Replacement, Etc. (Service Lines, Mains and Transmission Lines) CTS 1803 Pressure Regulating, Limiting, and Relief Device – Operation and Maintenance CTS-2301 Uprating Steel Pipelines to a Pressure that will Produce a Hoop Stress 30% or More of SMYS CTS-2302 Uprating Steel Pipelines to a Pressure that	192-2301 Uprating Steel Pipelines to a Pressure that will Produce a Hoop Stress 30% or More of SMYS 192-2302 Uprating Pipelines to a Pressure that will Produce a Hoop Stress Less than 30% SMYS

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			will Produce a Hoop Stress Less than 30% SMYS	
2.3	System up-rating	Operator's Workshop, MEA-521	CTS-1419 Uprating: Reinforce or Anchor Offsets, Bends, and Dead Ends CTS-2301 Uprating Steel Pipelines to a Pressure that will Produce a Hoop Stress 30% or More of SMYS CTS-2302 Uprating Steel Pipelines to a Pressure that will Produce a Hoop Stress Less than 30% SMYS	192-1419 Uprating: Reinforce or Anchor Offsets, Bends, and Dead-ends 192-2301 Uprating Steel Pipelines to a Pressure that will Produce a Hoop Stress 30% or More of SMYS 192-2302 Uprating Pipelines to a Pressure that will Produce a Hoop Stress Less than 30% SMYS
2.4	Investigating and documenting line failure	Operator's Workshop, MEA-462	N/A	Abnormal Operating Conditions Module
2.5	Accident reporting	Operator's Workshop, O&M Manual, MEA-103	N/A	Abnormal Operating Conditions Module
Sec. 3	Marking and Mapping Facilities			
3.1	Locating facilities using the conductive method	Operator's Workshop, Manufacturer's Procedures, MEA-402	CTS 0801 Locating Pipelines	192-0801 Locating Pipelines
3.2	Locating facilities using the inductive method	Operator's Workshop, Manufacturer's Procedures, MEA-402	CTS 0801 Locating Pipelines	192-0801 Locating Pipelines
3.3	Locating facilities using the inductive method (two persons)	Operator's Workshop, Manufacturer's Procedures, MEA-402	CTS 0801 Locating Pipelines	192-0801 Locating Pipelines
3.4	Determining depth through triangulation	Operator's Workshop, Manufacturer's Procedures, MEA-402	CTS 0801 Locating Pipelines CTS 1417 Protection When Minimum Cover Not Met	192-0801 Locating Pipelines 192-1417 Protection when Minimum Cover not Met
3.5	System mapping	Operator's Workshop MEA-402	CTS 0901 System Patrolling	192-0901 System Patrolling
Sec. 4	Fundamentals of Field Safety in Construction, Operation, and Maintenance			
4.1	Personal protective equipment	OSHA compliance manual and training, MEA-111	N/A	N/A
4.2	Power tool safety	OSHA compliance manual and training, MEA-121	N/A	N/A
4.3	Proper firefighting	Emergency Procedures		

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	techniques	Training, MEA-122	N/A	N/A
4.4	Controlling the accidental release of gas	Emergency Procedures Training, MEA-131	Abnormal Operating Conditions Test	Abnormal Operating Conditions Module
4.5	Soil subsidence	OSHA compliance manual and training, MEA-201	CTS 1402 Backfilling	192-1402 Backfilling
4.6	Atmospheric corrosion	Operator's Workshop, MEA-202	CTS 0401 Corrosion Monitoring – Atmospheric, External, and Internal	192-0401 Corrosion Monitoring - Atmospheric, External, and Internal
4.7	Recognizing unsafe meter sets	MEA-211	CTS 1422 Segment Repair, Replacement, Etc. (Service Lines, Mains and Transmission Lines)	192-1422 Segment Repair, Replacement, Etc. (Service Lines, Mains and Transmission Lines)
4.8	Confined space entry (vaults, etc.)	OSHA compliance manual and training, MEA-501	CTS 1802 Vault Maintenance	192-1802 Vault Maintenance
4.9	Job site protection	Compliance manual and training, MEA-MEA-401	N/A	N/A
4.10	Purging safety	Operator's Workshop, MEA-422	CTS 1418 Purging	192-1418 Purging
4.11	Pressure testing steel and plastic pipeline	Operator's Workshop, MEA-421	CTS 1301 Leak and Strength Test – Service Lines, Mains, and Transmission Lines	192-1301 Leak and Strength Test - Service Lines, Mains, and Transmission Lines
4.12	Abandoning facilities	Operator's Workshop, MEA-471	CTS 1401 Abandonment or Inactivation of Facilities	192-1401 Abandonment or Inactivation of Facilities
4.13	Excavation safety	OSHA compliance manual and training, MEA-404	New CTS 12/03	N/A
Sec. 5	Fundamentals of Gas Leaks - Survey and Response			
5.1	Leak classification	Emergency Procedures Training, Gas Fundamentals Training, MEA-221	CTS 1201 Leakage Survey: Distribution & Transmission CTS 1202 Outside Leakage Investigation, Pinpointing, and Grading CTS 1203 Inside Gas Leakage Investigation	192-1201 Leakage Survey: Distribution and Transmission 192-1202 Outside Gas Leakage Investigation, Pinpointing, and Grading 192-1203 Inside Gas Leakage Investigation
5.2	Procedures for leak surveys and patrols	Operator's Workshop, MEA-271	CTS 1201 Leakage Survey: Distribution & Transmission	192-1201 Leakage Survey: Distribution and Transmission

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			CTS 1202 Outside Leakage Investigation, Pinpointing, and Grading CTS 1203 Inside Gas Leakage Investigation	192-1202 Outside Gas Leakage Investigation, Pinpointing, and Grading 192-1203 Inside Gas Leakage Investigation
5.3	Combustible gas indicators	Operator's Workshop, Manufacturer's Procedures MEA-231	CTS 1201 Leakage Survey: Distribution & Transmission CTS 1202 Outside Leakage Investigation, Pinpointing, and Grading CTS 1203 Inside Gas Leakage Investigation	192-1201 Leakage Survey: Distribution and Transmission 192-1202 Outside Gas Leakage Investigation, Pinpointing, and Grading 192-1203 Inside Gas Leakage Investigation
5.4	Electronic gas detectors	Operator's Workshop, Manufacturer's Procedures, MEA-231	CTS 1201 Leakage Survey: Distribution & Transmission CTS 1202 Outside Leakage Investigation, Pinpointing, and Grading CTS 1203 Inside Gas Leakage Investigation	192-1201 Leakage Survey: Distribution and Transmission 192-1202 Outside Gas Leakage Investigation, Pinpointing, and Grading 192-1203 Inside Gas Leakage Investigation
5.5	Flame ionization	Operator's Workshop, Manufacturer's Procedures MEA-232	CTS 1201 Leakage Survey: Distribution & Transmission CTS 1202 Outside Leakage Investigation, Pinpointing, and Grading CTS 1203 Inside Gas Leakage Investigation	192-1201 Leakage Survey: Distribution and Transmission 192-1202 Outside Gas Leakage Investigation, Pinpointing, and Grading 192-1203 Inside Gas Leakage Investigation
5.6	Bar hole testing and purging	Operator's Workshop, MEA-261	CTS 1202 Outside Leakage Investigation, Pinpointing, and Grading CTS 1803 Pressure Regulating, Limiting, and Relief Device – Operation and Maintenance	192-1201 Leakage Survey: Distribution and Transmission 192-1202 Outside Gas Leakage Investigation, Pinpointing, and Grading 192-1203 Inside Gas Leakage Investigation
Sec. 6	Fundamentals of Customer Service			
6.1	Carbon monoxide (CO) testing	Operator's Workshop, MEA-241	N/A	192-0101 Characteristics and Hazards of Natural

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6.2	Investigating leaks	Operator's Workshop, MEA-272	CTS 1201 Leakage Survey: Distribution & Transmission CTS 1202 Outside Leakage Investigation, Pinpointing, and Grading CTS 1203 Inside Gas Leakage Investigation	192-1201 Leakage Survey: Distribution and Transmission 192-1202 Outside Gas Leakage Investigation, Pinpointing, and Grading 192-1203 Inside Gas Leakage Investigation
6.3	Combustion and ventilation air requirements	Operator's Workshop, MEA-301	N/A	N/A
6.4	Pilot light operation	Operator's Workshop, MEA-311, 324	N/A	N/A
6.5	Gas-air adjustment	Operator's Workshop, MEA-312	N/A	N/A
6.6	Appliance venting	Operator's Workshop, MEA-313	N/A	N/A
6.7	Pressure checks to establish gas service	Operator's Workshop, MEA-321	CTS 1301 Leak and Strength Test – Service Lines, Mains, and Transmission Lines	192-1301 Leak and Strength Test – Service Lines, Mains, and Transmission Lines
6.8	Establishing and disconnecting gas	Operator's Workshop, MEA-322	CTS 1301 Leak and Strength Test – Service Lines, Mains, and Transmission Lines CTS 2014 Service Lines Not In Use and Service Discontinuance	192-1301 Leak and Strength Test – Service Lines, Mains, and Transmission Lines 192-2014 Service Lines Not In Use and Service Discontinuance
Sec. 7	Fundamentals of Construction			
7.1	Pressure testing steel and plastic pipeline	Operator's Workshop, MEA-421	CTS 1301 Leak and Strength Test – Service Lines, Mains, and Transmission Lines	192-1301 Leak and Strength Test – Service Lines, Mains, and Transmission Lines
7.2	Procedures for abandoning facilities	Operator's Workshop, MEA-471	CTS 1401 Abandonment or Inactivation of Facilities	192-1401 Abandonment or Inactivation of Facilities
7.3	Cathodic protection (general)	Operator's Workshop, MEA-431	CTS 0501 Cathodic Protection System Maintenance CTS 0503 Cathodic Protection Systems - Electrical Connections CTS 0505 Cathodic Protection System Testing	192-0501 Cathodic Protection System Maintenance 192-0503 Cathodic Protection Systems - Electrical Connections 192-0505 Cathodic Protection System

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				Testing
7.4	Constructing facilities across streets, railroads, and waterways	Operator's Workshop, MEA-453	CTS 1404 Casing Vents and Seals	192-1404 Casing Vents and Seals
7.5	Operating thermite welder	Operator's Workshop, Manufacturer's Procedures, MEA-431	CTS 0401 Corrosion Monitoring – Atmospheric, External, and Internal	192-0401 Corrosion Monitoring - Atmospheric, External, and Internal
7.6	Installing tracer wire	Operator's Workshop, DOT Small Gas Operators Manual MEA-451, 452	CTS 1408 Installation of Plastic Pipe CTS 1409 Installation of Steel Pipe	192-1408 Installation of plastic pipe 192-1409 Installation of Steel Pipe
7.7	Installing valves	Operator's Workshop, MEA-451	CTS 1427 Valve Maintenance	192-1427 Valve Maintenance
7.8	Steel and cast iron repair fittings	Operator's Workshop, Manufacturer's Procedures, MEA-461	CTS 1001 Cast Iron Joints - Sealing CTS 1422 Segment Repair, Replacement, Etc. (Service Lines, Mains and Transmission Lines) CTS 1430 Internal Sealing - Cast Iron and Ductile Iron Segments	192-1001 Cast Iron Joints – Sealing 192-1422 Segment Repair, Replacement, Etc. (Service Lines, Mains and Transmission Lines) 192-1430 Internal Sealing - Cast Iron and Ductile Iron Segments
7.9	Maintaining steel and cast iron mains	Operator's Workshop, MEA-462	CTS 1422 Segment Repair, Replacement, Etc. (Service Lines, Mains and Transmission Lines)	192-1422 Segment Repair, Replacement, Etc. (Service Lines, Mains and Transmission Lines)
7.10	Reinforcing steel and plastic mains	Fusion Workshop, MEA-463	CTS 1424 Support, Expansion Joints and Anchor Maintenance - Exposed Pipeline	192-1424 Support and Anchor Maintenance - Exposed Pipeline
7.11	Plastic pipe joining (fusion)	Fusion Workshop, MEA-411	CTS 1001 Cast Iron Joints - Sealing CTS 1002 Plastic Pipe – Electrofusion CTS 1003 Plastic Pipe - Butt Heat Fusion CTS 1004 Plastic Pipe – Sidewall Heat Fusion	192-1001 Cast Iron Joints– Sealing 192-1002 Plastic Pipe – Electrofusion 192-1003 Plastic Pipe - Butt Heat Fusion 192-1004 Plastic Pipe - Sidewall Heat Fusion
7.12	Plastic pipe joining	Operator's Workshop, MEA-463	CTS 0803 Inspection for Damage	192-0803 Inspection for

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	(mechanical couplings)			Damage
7.13	Recognition of defective material	Operator's Workshop, MEA-411, 412, 421	CTS 1411 Inspection	192-1411 Inspection
7.14	Steel pipe joining by welding	Pipeline Welding Workshop, Qualified Welding Procedures	CTS 2401 Welding	192-2401 Welding
7.15	Steel pipe joining by mechanical couplings	Operator's Workshop, Operator's Workshop, MEA-412	CTS 1005 Mechanical Joints	192-1005 Mechanical Joints
7.16	Damage prevention	Operator's Workshop, MEA-462	CTS 0803 Inspection for Damage	192-0803 Inspection for Damage
7.17	Application of padding and shielding	Operator's Workshop, MEA-453	CTS 1402 Backfilling	192-1402 Backfilling
7.18	Replacing emergency valves	Operator's Workshop, MEA-441, 511	N/A	N/A
7.19	Installing meter sets	Operator's Workshop, MEA-211, 322, 452	CTS 1803 Pressure Regulating, Limiting, and Relief Device – Operation and Maintenance	192-1803 Pressure Regulating, Limiting, and Relief Device -Operation and Maintenance
7.20	Tapping and stopping steel pipe 1" through 4"	Operator's Workshop, MEA-441	CTS 1426 Tapping Steel and Plastic Pipe	192-1426 Tapping Steel and Plastic Pipe
7.21	Tapping and stopping steel pipe 6" through 8"	Operator's Workshop, Manufacturer's Procedures	CTS 1426 Tapping Steel and Plastic Pipe	192-1426 Tapping Steel and Plastic Pipe
7.22	Tapping and stopping polyethylene pipe	Operator's Workshop, MEA-451, 452	CTS 1426 Tapping Steel and Plastic Pipe	192-1426 Tapping Steel and Plastic Pipe
7.23	Vault abandonment	Operator's Workshop, MEA-471, 501	CTS 1802 Vault Maintenance	192-1802 Vault Maintenance
Sec. 8	Fundamentals of Construction – Heavy Equipment Operation			
8.1	Operating backhoe	Operator's Workshop, MEA-403	N/A	N/A
8.2	Operating trencher	Operator's Workshop, Manufacturer's Procedures, MEA-403	N/A	N/A
8.3	Operating boring equipment	Operator's Workshop, Manufacturer's Procedures	N/A	N/A
8.4	Ditch and backfill inspection	Operator's Workshop, MEA-404	CTS 1402 Backfilling	192-1402 Backfilling
Sec. 9	Fundamentals of Measurement and Control			

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9.1	Metering	Metering Workshop	N/A	N/A
9.2	Odorization measurement and control	Operator's Workshop, MEA-251	CTS 1501 Odorization – Mains and Transmission Lines	192-1501 Odorization - Mains and Transmission Lines
Sec. 10	Corrosion Control			
10.1	Cathodic protection	Corrosion control workshop, MEA-431	CTS 0501 Cathodic Protection System Maintenance	192-0501 Cathodic Protection System Maintenance
10.2	Internal corrosion	Corrosion control workshop, MEA-431	CTS 0401 Corrosion Monitoring – Atmospheric, External, and Internal	192-0401 Corrosion Monitoring - Atmospheric, External, and Internal
10.3	External corrosion	Corrosion control workshop, MEA-431	CTS 0401 Corrosion Monitoring – Atmospheric, External, and Internal	192-0401 Corrosion Monitoring - Atmospheric, External, and Internal
10.4	Atmospheric corrosion	Corrosion control workshop, MEA-202	CTS 0401 Corrosion Monitoring – Atmospheric, External, and Internal	192-0401 Corrosion Monitoring - Atmospheric, External, and Internal
10.5	Coatings	Corrosion control workshop, MEA-431	CTS 0402 Coating Maintenance	192-0402 Coating Maintenance
10.6	Holiday detection (coating inspection)	Corrosion control workshop, MEA-431	CTS 0402 Coating Maintenance	192-0402 Coating Maintenance
10.7	Painting and jacketing above ground facilities	Corrosion control workshop, MEA-202	CTS 0402 Coating Maintenance	192-0402 Coating Maintenance
10.8	Installation of cathodic protection (sacrificial anode system)	Corrosion control workshop, MEA-431	CTS 0501 Cathodic Protection System Maintenance CTS 0503 Cathodic Protection Systems - Electrical Connections CTS 0505 Cathodic Protection System Testing	192-0501 Cathodic Protection System Maintenance 192-0503 Cathodic Protection Systems - Electrical Connections 192-0505 Cathodic Protection System Testing
10.9	Installation of impressed current system	Corrosion control workshop, MEA-431	CTS 0501 Cathodic Protection System Maintenance CTS 0503 Cathodic Protection Systems - Electrical Connections CTS 0505 Cathodic Protection System Testing	192-0501 Cathodic Protection System Maintenance 192-0503 Cathodic Protection Systems - Electrical Connections 192-0505 Cathodic Protection System Testing
10.10	Inspection, monitoring cathodic protection system	Corrosion control workshop, MEA-431	CTS 0501 Cathodic Protection System Maintenance CTS 0503 Cathodic	192-0501 Cathodic Protection System Maintenance 192-0503 Cathodic

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			Protection Systems - Electrical Connections CTS 0505 Cathodic Protection System Testing	Protection Systems - Electrical Connections 192-0505 Cathodic Protection System Testing
Sec. 11	Odorization			
11.1	Operating and maintaining differential odorant system	Operator's Workshop, O&M Manual, MEA-251	CTS 0501 Cathodic Protection System Maintenance	192-0501 Cathodic Protection System Maintenance
11.2	Operating and maintaining injection odorant system	Operator's Workshop, O&M Manual, MEA-251	CTS 1501 Odorization – Mains and Transmission Lines	192-1501 Odorization - Mains and Transmission Lines
11.3	Testing odorant level	Operator's Workshop, O&M Manual, MEA-251	CTS 1501 Odorization – Mains and Transmission Lines	192-1501 Odorization - Mains and Transmission Lines
Sec. 12	Other Operating and Maintenance Skills			
12.1	Operating valves (including emergency valves), regulators, and relief valves	Operator's Workshop, O&M Manual, MEA-244, 511, 512	CTS 0701 Locating, Installing, and Protecting Customer Meters and Regulators CTS 0702 Customer Pressure Regulating, Limiting, and Relief Device – Operation and Maintenance	192-0701 Locating, Installing, and Protecting Customer Meters and Regulators 192-0702 Customer Pressure Regulating, Limiting, and Relief Devices - Operation and Maintenance
	Competencies and Skills	Suggested Training Reference¹	Q41 References	OQforAll References
12.2	Inspecting pressure regulating and limiting stations	Operator's Workshop, O&M Manual, MEA-512	CTS 0701 Locating, Installing, and Protecting Customer Meters and Regulators CTS 0702 Customer Pressure Regulating, Limiting, and Relief Device – Operation and Maintenance	192-0701 Locating, Installing, and Protecting Customer Meters and Regulators 192-0702 Customer Pressure Regulating, Limiting, and Relief Devices - Operation and Maintenance

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12.3	Inspecting and maintaining key valves	Operator's Workshop, O&M Manual, MEA-511	CTS 1427 Valve Maintenance	192-1427 Valve Maintenance
12.4	System uprating	Operator's Workshop, O&M Manual, MEA-521	CTS 1419 Uprating: Reinforce or Anchor Offsets, Bends, and Dead Ends	192-1419 Uprating: Reinforce or Anchor Offsets, Bends, and Dead-ends
Sec. 13	Operating Peak Shaving Plant (Propane/air mixture/injection)			
13.1	Pre-start-up procedures	O&M Manual, Emergency shut down procedures	N/A	N/A
13.2	Start-up/operating procedures/shut down in accordance with operators manual for specific equipment	O&M Manual, Emergency shut down procedures	CTS 0301 Operating Gas Compressor Units CTS 0302 Shutting Down Gas Compressor Units	192-0301 Operating a Gas Compressor Unit 192-0302 Shutting Down a Gas Compressor Unit

¹Reference to operator training refers to workshops conducted by state and regional associations, such as the Iowa Association of Municipal Utilities and the Midwest Energy Association (formerly known as Midwest Gas Association), manufacturers and distributors of gas industry products and equipment, state regulatory agencies, and other organizations. Specific references to MEA materials are to training modules in the Midwest Energy Association's Operator Qualification Training series.